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ABSTRACT

The EPIEgram newsletter contains information about educational materials and technology for elementary secondary education. In addition to the continuing feature, "The Educational Software Selector" (TESS), the nine issues contain articles on evaluating educational technology; school reform; publishing; multimedia; hypermedia; the information superhighway; the national information infrastructure; educational ethics; and computer networks. (JLB)

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EPIEgram: The Newsletter of Systemic Change, 1992-1993

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EPIEgram

The Newsletter of Systemic Change

Earl L. Fultz, Editor & Publisher

Volume 19, Number 1 October 1992

Value & Values:

Evaluating Technology in the Schools

(The following excerpts are from a work in progress by Ken Komoski, Executive Director of EPIE Institute, which the editor of EPIEgram *has been privileged to discuss with him. At this time, Mr. Komoski is preparing a visualized presentation on the subject for showing to groups and organizations interested in doing a better job of evaluating technology in schools.)*

Mr. Komoski's opening premise "When a school is buying high-tech technology, the primary concern is whether or not they are getting good value (e.g., price, service); in other words, their 'moneysworth.'

"However, in order really to get their moneysworth, the decisionmakers should be concerned about the **values** promulgated by the technology (e.g., the educator might have a concern about equitable representation of women and minorities.)"

Komoski points out that **values** have always been important even in low-tech technology such as a **textbook**. However, the textbook is primarily a teaching tool for the teacher, and there is considerable room for interpretation by the teacher regarding the values imbedded in the material.

"The situation is quite different with high-tech technology," Komoski says, "for it is a tool for the **learner**. The teacher is no longer the primary channel of communication, but assumes the role of mediator or facilitator, and the values embedded in the software go directly to the student without intervention or manipulation."

Values have always been important, Komoski notes, but the scope of what is being offered has changed tremendously.

Whereas once the textbook industry was privately and/or family owned with dozens of companies, in recent years the industry "imploded" until only a handful of publicly-held corporations are left, many with other businesses as large or larger than textbook publishing. Some of these have moved into becoming software and/or multimedia producers, but growth in these areas has not been as dynamic as anticipated by management with attention fixed on the bottom line.

The implosion of the print-based educational materials has significantly lessened the variety of values available. Textbooks are written to appeal to the broadest possible market with the result that a "one size fits all" philosophy has resulted.

In high-tech technology, on the other hand, Komoski says, there has been a proliferation of producers of educational software, many of them quite small. As an example, Komoski points to the fact that when EPIE Institute first launched TESS, its comprehensive database of information on software, in 1981, there were barely 100 software producers and only a few hundred programs.

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SCISS/TESS Update
Begins on Page 5

More of *The Latest* Software from *TESS*!

Five Big Pages Crammed with Program Data and Descriptions

Editorial

A lot of people are mad at Ross Perot and they should be. For one brief, golden moment, there was the promise of "Truth" without the hyperbole of politics and special interest. And he finked out. When the going got tough, Perot got gone.

Of course, he had set himself an impossible task because all the Perot enthusiasts—and they ranged from arch-conservative to ultra-liberal—expected him to voice their versions of the Truth whereas he was really interested only in voicing his own.

The ultimate business pragmatist, Perot began to realize, belatedly, that he didn't have the Right Stuff to be the conduit for so many differing opinions, so he scooted. But he left a vacuum, one which reminds us how much of the time we submerge our own beliefs and feelings. We do what is expedient, not what we believe. We join in on the politics of our immediate environment, decrying the idiocy of it all in private but playing the game in public, doing what's smart, not what's right.

What Ross Perot has done for us, inadvertently, is remind us all how much we yearn to be honest in our relationships, truthful in our beliefs, dedicated in our work and aligned with a future that can expand the American Dream, not inter it.

So it's time to be honest with one another. And that's what we at *EPIEgram* intend to promulgate even more than before. So let's start the process right here by listing a few things that really annoy us.

Sports. Schools should emphasize health, not sports, individual activities, not "winning teams." It bothers us that organized sports has such a hold on our schools and our nation. The purpose of school is to prepare the young for adult life; I learned nothing playing football (three-year letterman) except that knees bend only one way (it still hurts 50 years later) and that a broken nose tends to impair breathing.

School reform could have no better starting point than to take a considerable portion of the phys-ed budget and begin spending it on instructional materials and technology until at least 5% of the school budget is allocated for learning materials instead of the current 1%. If we do this, there is some hope that the 50% of graduates who have no marketable job skills might begin to be reduced.

Computers. No student should be allowed to graduate without a working knowledge of the computer. It is a grave disservice to students to let them go out into a computerized world without basic computer skills. Many of these skills can be learned by having the older, more computer-savvy kids teaching younger students.

Make computer skills (along with proficiency in reading and math) a prerequisite to any involvement in team sports. Get coaches to support this.

Teacher/Administrator Ratio. Any school that has appreciably increased the ratio of administrative personnel to teaching personnel in the past 20 years is shortchanging the students. This is worsened because schools tend to pay more for non-teaching positions than does the private sector for similar occupations (e.g, custodians, secretaries, food-service workers). The budget gets a double whack: unnecessary people who get paid higher than the prevailing wage.

Curriculum Articulation and Alignment. It is unlikely that any school in America actually teaches and tests its official curriculum. Educators who ignore this fact and who pretend they have the educational materials and tests which align with a well-articulated curriculum are a chief obstacle to education improvement.

This is a subtle problem and generally misunderstood if not actually ignored; but the simple fact is that the teacher can't teach the curriculum unless the school's educational materials and testing programs align with an agreed-upon curriculum.

Voucher System. While many fear that public schools will suffer if vouchers become the law of the land, we are a bit more sanguine. Currently, the parent, the student, and the community are relatively helpless to force change in the schools because there is no inexpensive alternative to the school to which their child is assigned.

The voucher gives the parents and students some power, some control. The arguments surrounding it inevitably create a focus on the kind of education the local schools are providing. With a voucher in hand, the parents and students are given a direct and democratic way to vote on whether they feel they are getting what they want.

Can vouchers be abused? Of course. Almost anything that you can think up will probably happen, including a total disruption of the educational establishment. But chaos is a precursor of change. As we said at the outset, comfortable bureaucracies don't reform as long as there is a remote chance of hanging on to the status quo.

A voucher is economic and a component of educational democracy. You take your money and vote for what best serves your needs. It isn't quite Adam Smith's invisible hand of the market – but it has some of the elements, enough of them, to provide the basis for reform.

The educational establishment has had at least 15 years and billions of additional dollars to bring about improvement. Little has been accomplished. It's time to begin the revolution – not from the top down but from the bottom up.

Aux armes, Citoyens!

Earl L. Fultz
Editor & Publisher

The Director's Column

Ken Komoski
Executive Director
EPIE Institute

Power to the Powerless

If I understand the difference between traditional American management and that which has grown up in postwar Japan, it is that one believes in top-down change, the other believes that bottom-up is the surest and best approach.

To be more specific, American management believes in making broad, sweeping decisions at the top level (this is why, presumably, some CEO's get 20-40-60 million a year) and then seeing that these are enforced down the line, a technique which needs more middle managers and is almost guaranteed to annoy the worker. The Japanese approach is built on the principle that the person doing the work is best qualified to suggest improvements and increase productivity.

Top-down change tends to be disrupting, in part because no need is seen until it reaches crisis proportions. Then the change is like a tidal wave sweeping everything before it. Bottom-up change can be very orderly. Small changes are not disruptive and can be easily fine-tuned. And small changes are like small streams, which when joined together make bigger streams, then rivers, that flow to the sea.

American-style change has a certain air of derring-do that we evidently like. It's a crap shoot and it can be exciting; the whole nation working together to build a better America. The other approach—a little here, a little there—is...well...borrr-rrring.

We are rapidly approaching a point where there must be change. Everyone is putting forth grand, well thought-out plans which try to imagine every conceivable problem and provide a solution. It's an exercise in futility, of course. No one can foretell the future well enough to anticipate all the problems and provide all the solutions.

It's a real problem, this attitude of ours that someone, somewhere has The Answer. We can't seem to realize that change is a process, not a Big Bang, that constant tinkering is better than total redesign. (The constantly improved VW Beetle was a better car by far than the rabbit which replaced it.)

We can see this in the dismal results of school reform which started with a "redesign" focus in the '80s and which has yet to show any significant change or real improvement in teaching and learning.

We are seeing it again in the '90s in the official response to the problem. Get some money, ask lots of bright people to send in ideas for school reform, pick 20 or 30 of the best ideas and put them in practice – Top-Down thinking. We can't get away from it.

I have a firm belief that American education will eventually get better (in the meantime, we will have raised a generation or two of children who will never be adequately educated), and while I can't say exactly how it will happen, I know it will happen because of change starting at the local level and moving upward rather than that some grand scheme will magically appear which gives us World Class graduates in every subject.

I think it will occur soon and it will come about when teachers, parents, and students have access to educational ideas and materials which they choose to meet their own needs. The elements are already in place. For example: there are more computers in homes than in schools; whatever a school does not provide a student is increasingly available electronically.

In other words, no longer must a parent or a student depend on traditional schooling to become educated.

And teachers—frustrated as I know so many are by the strictures and lack of vision of school districts and administration and school boards—are also freed to help bring the kind of teaching materials needed into their own class-

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EPIEgram

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Earl L. Fultz, Editor & Publisher
P. Kenneth Komoski, Executive Director, EPIE Institute
Pat Lutzky, Manager, SCISS\TESS

rooms. All that is needed is a computer and the **knowledge** of where to find the right software.*

Home learnin' is about to happen. Prodigy (1.5 million homes) is beginning to deliver software electronically to concerned parents. We hear whispers that various large companies are recognizing the pent-up need for electronic delivery of software to the home.

The headlines will be going to the great new plans for saving American education, but the work is going to be done in hundreds and thousands of classrooms and millions of homes where parents, students, and teachers will turn to electronic learning through appropriate software to provide young people the kind of educational support which bureaucratic "leaders" in schools—with their top-down orientation—will not offer for another generation or two, and only after endless prodding.

Constructive revolutions never start at the top. They start at the bottom with peasants picking up their pitchforks and saying "enough!"

America is at that point now – in politics, in business, and most certainly in education. Once the revolution is in progress, once it is a success, leaders will emerge to take credit for it. But we'll know where it began. In homes and classrooms all over America. If you want to know more, write us!

Aux armes, citoyens!

* This is, of course, why EPIE Institute began building The Educational Software Selector (TESS) over a decade ago. With TESS, the teacher or parent or student can find the needed software within minutes from among the more than 12,000 educational software programs described and rated.

NEWS

Guys Luv Preschool Program

Citing a recent study by the Carnegie Foundation for Advancement of Teaching, the National Governor's Association has called for a new emphasis on getting preschool children ready to be educated.

The survey of 7,000 kindergarten teachers, completed in 1991, showed that more than half the teachers reported that their students were hindered in learning by health, nutritional, and family problems.

Copies of the Governors' report are available from The National Governors Association Publications, P. O. Box 421, Annapolis Junction, Maryland 20701.

The Rights Saga Continues....

When it comes to intellectual property, the copyright laws are from the 18th century; and the technology from the 21st is well advanced toward making a mockery of them.

With the advance of digital technology, all the world's information, theoretically, will be available electronically, a concept which sends fear and trembling through executive suites.

For example, Apple's already-announced "Newton," a hand-held personal information system due in 1993, will be able to transfer information to another system with the push of a button – creating the potential for copyright infringement every time that happens.

Of particular concern is that copyright infringement problems may put the brakes on new technology. Some publishers and producers are putting such high fees on reprint rights that they effectively ban the use of the material. Others are merely proposing that users be educated to behave ethically; not too promising an approach in an era of rapid ethical decline. (The Software Publishers Association does have a rap music video entitled "Don't Copy That Floppy." However, it has yet to make the Top 40.) Numerous techno-whizzes are searching for an electronic solution to an electronic problem.

> ***(Editorial comment**: What's the solution? Probably none if 18th-Century copyright laws are the starting point. But if information in an Information Age is seen as a national resource, then access to that information should not be denied to citizens just because they can't afford to pay for it. The library, for example, allows both protection of copyright and use of the information at little or no cost. Similarly, in the music business, ASCAP protects the originator when the recording is used for commercial purposes but an individual can listen to a recording repeatedly at no additional cost. "Digital libraries" are already being created. The answer lies in bringing copyrightable material together in a controllable area rather than in keeping it splintered with little hope of policing its use.)*

Addendum: A recent court ruling states that the "behavior" of a computer program is not copyrightable. This was viewed as a victory by those who feel software publishers are restricting innovation and limiting competition. ❑

Beggars Can Be Choosers

When budgets are short and community interest in education high, don't overlook corporate, foundation, and personal gifts. IBM, which leads corporate donors, gave $150 million last year, including product donations; Hewlett Packard is a not-so-close second with $76 million. RJR Nabisco is spending a much publicized $30 million.

Perhaps the best way is through organizations set up to channel corporate goods and services to not-for-profits. The best known is "Gifts In Kind," set up and administered by United Way. Contact your local United Way, or Gifts in Kind, 700 North Fairfax Street, Suite 300, Alexandria, Virginia 22314, telephone 703 836-2121.

Also: National Association for the Exchange of Industrial Resources (NAEIR), P.O. Box 8076, Galesburg, Illinois 61402, telephone 309 343-0704.

THE STATES CONSORTIUM FOR IMPROVING SOFTWARE SELECTION
SCISS
TESS
THE EDUCATIONAL SOFTWARE SELECTOR
UPDATE

Hoosiers Hooked on TESS

Indiana's Educational Service Centers moved rapidly this past summer to distribute the TESS software database statewide. This included making copies of the diskettes, promoting the concept, and training key personnel.

Although Indiana first joined the States Consortium last year with assistance from Purdue University, the ESCs are working together to fund second-year membership on their own. With the ESCs on their own, the drive to distribute TESS to constituent schools has been strengthened and accelerated. Since the ESCs are somewhat autonomous, there is no statewide mandate to utilize TESS, but most centers are actively involved.

"One of the ESCs is already using TESS for curriculum work," noted Dr. John Soudah, Executive Director of the Northwest Indiana ESC in Highland. "They had no training; they just sat down and played with the database and figured out how to use it and put it right to work." According to Dr. Soudah, previously the ESC staff had only catalogues and magazines as sources in their search for software. "One of the surprises," he says, "is how much software there is that no one knew existed."

Volunteer State Signs Up for SCISS

In August, Tennessee officially became the sixth state to join the States Consortium for Improving Software Selection (SCISS). Funding came from the Tennessee State Department of Education.

At press time, plans were being developed for the dissemination of the database and the training necessary to help educators fully utilize TESS. No names or details were yet available.

"It always takes time to create a new structure," says Ken Komoski, Executive Director of EPIE Institute, the manager of the Consortium, "but some of the states have worked through the process quite well and, through the Consortium, are able to share with other states." He noted that Michigan had been particularly helpful with other states and that Texas, which has done an admirable job of getting some version of TESS into every school in the state (6,300 in all) can well serve as a model.

The Texas Educational Agency has volunteered to consult with any state which has recently joined SCISS or wishes to do so, and wants to learn how Texas did it and to share their experience. Contact Karen Kahan (SCISS President) in the Office of Technology, 1701 North Congress Avenue, Austin, Texas 78701. 512 463-9064. Pat Lutzky, Manager of SCISS, is another excellent source of information and can be reached through EPIE Institute, 516 728-9100.

Windy City Breezes Into SCISS

While TESS is usually distributed on a statewide basis through the States Consortium, the City of Chicago is about to join SCISS without waiting for the State of Illinois to become a member.

A key factor has been the MacArthur Foundation's willingness to provide the financing for the first-year membership. More on this in next month's *EPIEgram*.

Tech Notes

Technology Provides Voice for the Autistic

A promising new approach to autism, termed "facilitated communications," has also drawn its share of critics. The disorder is characterized by, among other things, a seeming inability to form social attachments, feel affection, as well as a lack of self-awareness. There can also be uncontrollable physical movements and difficulty in understanding or communicating. (Remember Dustin Hoffman in *Rain Man*?)

Using a hand-held keyboard, a facilitator helps guide the autistic individual's finger to spell out words. The technique, developed in Australia for patients with cerebral palsy, has been tried with autistic persons with considerable success, according to its advocates. (Remember Robin Williams in *Awakenings*?)

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Critics of the approach suggest the facilitator unconsciously determines the result (the Ouija Board effect), something enthusiasts vigorously deny. If proven valid, facilitated communication will force an entirely new evaluation of basic assumptions about autism.

A Customizable Microprocessor in Your Future

Apple's new Newton may not be the breakthrough product so simple that anyone can use it, but critics say it takes a giant step in that direction due to a "multitasking operating system" and complex "recognizers" that make it easier to use than other computers.

The breakthrough is Newton's customized microprocessor which, in all likelihood, will be showing up in a variety of new products which don't look like computers but are, dedicated to a specific function such as address books and telephones and appointment books.

Less futuristic are portable offerings from Gateway and Dell which exploit DOS-compatible hardware for a new high in portability. Also on the horizon is Phoenix's Companion PC and others as yet only being whispered about.

Advice to educators: get your students into computers fast or they won't recognize the world they will be graduating into.

Smart Tires

Another glimpse of the world of tomorrow is contained in an announcement from Goodyear Tire and Rubber that they have developed a smart truck tire which will monitor its own durability and, on command, give a detailed account of performance.

The secret is a computer chip embedded in the tire which will give a readout on a hand-held digital reader or a display built into the dashboard. Already tested for four years, the smart tire extends tire life about 10% and will aid in detecting tire theft, a not uncommon problem. In time the chip will be able to report on tire wear, air pressure, and when it is time to recap.

Multimedia for the Masses

With a modest expenditure of $2,400, anyone with a Macintosh can create high quality video using nothing more than a pair of standard VCRs.

The key is a product from Radius, Inc. (San Jose, California) called Videovision which can produce flicker-free video output in true color at up to 30 frames a second, the same as broadcast TV.

According to experts, Videovision is unique in that it converts 24-bit video output to 16-bit TV video in real time, saving a step which in other systems can be a source of trouble.

Editor's suggestion: if you find this all too difficult, ask some of the Nintendo crowd in your classroom to get involved.

Tidal Wave of Software to Get Bigger

New educational software is pumped out at a rate of 150 to 200 new programs a month (see the blue section for the latest additions to the TESS database) and it is going to come even faster because of "FlashPort," a new product developed by Bell Labs and Apple Computer.

The program lets software writers easily port programs made for one computer's architecture to other designs. According to the developers, it normally takes from eight to twelve months to perform this function, whereas with the Echo System it can be done in two or three weeks.

The software, which will be marketed by Echo Logic, Inc., the most recent spinoff of AT&T Ventures Corp., a unit of AT&T, has been in development since January, 1991. Other deals are in the works but no one is talking.

The Price is Right

Thanks to Adam Smith's "invisible hand" of the market, the cost of microprocessor chips keeps going down and so does the cost of computers and computing. Some of the direct sellers (e.g., Dell, Gateway) are offering 386s with VGA color monitors in the $1200 range.

Naturally, there is a dizzying array of choices which reflect variations in power and price: 386SX, 386SL, 386DX, 486SLC, 486SX, 486DX, 486DX/2.

Our editorial advice: Buy what you can afford but don't worry about getting the top of the line with all the bells and whistles. It's better to have two stripped-down models than one deluxe because the objective is to get students working at computers. (And if there's a choice between new band uniforms and new computers – do right by the kids, get the computers.)

The Envelope, Please

Do you keep the old Selectric going just so you can address envelopes easily? If so, you can now send it to the museum. A new program called Addressmate from the publisher of the same name has the ability to remember the name and address from the letter being printed as well as remind you to print out the envelope. Addressmate works with most word-processing programs and all but the earliest HP Laserjet printers. It also does bar codes and labels. For more info: Addressmate, 6715 Canyon Trail, El Cerrito, California 94530. 510 237-7460. (**Note**: We have also seen free shareware programs which do this; get a catalog from The Software Labs, 3767 Overland Avenue, Los Angeles, California 90034.)

The Doctor is In

The doctor is always in when you have "Dr. Schueler's Home Medical Advisor," a medical encyclopedia in a computer. More than 40 physicians combined their skills under Dr. Stephen J. Schueler, a board-certified emergency medicine physician, to create a database divided into seven files: symptoms, diseases, injuries, poisons, tests, drugs, and health and diet.

The Home Medical Advisor is not intended to be a substitute for professional medical care but to help the user be a more informed consumer. It is particularly good for emergencies such as what to do when children swallow home-use products such as detergents or OTC medicines.

Price is a modest $69.95 from Pixel Perfect, Merrit Island, Florida. 800 788-2099.

Floppy Books

The up-front costs for publishing multimedia can get pricey ($100,000 and up), whereas books can be published on floppy disk for only a few hundred dollars.

Look for small publishers to get in the act, bringing out low-volume books for specialized markets. With costs this low, publishers can bring out titles that sell only a few hundred copies. And with digitized compression, a large book can be put on a single 3.5" disk and even leave room for color illustrations.

The Digital Wars

Philips announces it is introducing a digital version of the audio-cassette tape (DCC for Digital Compact Cassette). SONY, which has been riding the wave of compact discs, announces it is bringing out a "mini-disc" which, unlike CDs of the past, can be rerecorded at home.

The new Philips cassette format needs its own player (around $800) but it also plays any cassette, analog or digital, that was ever recorded. SONY's mini-disc also needs its own $6-700 player; but these can't play back other CDs. Both have a built-in guard against piracy. Copies can be made only from the original, which would tend to put a damper on pirates' ability to mass produce.

Who will win the war? Audiophiles are the obvious winners – if they can afford it.

E-Mail: E-normous Potential

E-Mail, the ability to send private messages to anyone on a network, is the third most popular networking feature, following closely file and printer sharing. The future looks even better, so much so that some of the bigger players are getting into the act with the necessary software, including: Lotus, Novell, Microsoft, Compaq, IBM, Apple, and HP.

Boning Up

The motivated student can now study for standardized tests with new interactive software from Cliff's StudyWare. The Test Preparation Series covers such standardized tests as Scholastic Aptitude Test (SAT), American College Test (ACT), Graduate Record Exam (GRE), Law School Admission Test (LSAT), Graduate Management Admission Test (FMAT), National Teachers Exam (NTE), and California Basic Educational Skills Test (CBEST).

All answers, correct or incorrect, are explained, and the student's results are automatically tallied and summarized. Students work at their own pace, select areas for special emphasis, and evaluate their own progress.

Available for MS-DOS and Macintosh computers, Cliff's StudyWare costs $49 each, $349 for the set. Order from Moonbeam Publications, Inc., 18530 Mack Avenue, Grosse Pointe, Michigan 48236. 800 445-2391; fax 800 334-9789.

Tricky IBM?

Sure, the PS/2 is compatible with other DOS machines; except for the keyboard and disk drives! Disks formatted on a PS/2 will not be recognized by other DOS computers; and if you want to use a different keyboard, you'll need an adaptor that runs about 25 bucks. A classroom or office which has "PS/2ed it" is cut off from the rest of the computing world. Marketing-wise, is this IBM's attempt to Appelize its products?

How Green Is My Valley

Douglas Englebardt may not be a household word like Walt Disney, but they have something in common – both invented a mouse.

Walt's mouse went to Southern California and helped make Hollywood famous. Englebardt's mouse, invented in the 1960s as a pointing device for his pioneering information retrieval system, helped make Silicon Valley the greenest in all California.

Now Logitech (Fremont, California), the world's largest maker of mouses (mice?) has introduced "Kidz Mouse" for the Macintosh ($79), a mouse designed for use by children, smaller and with two "ears." Since Apple, the foremost proponent of the mouse, decreed some time ago that a mouse should have only one button, is there a problem with a mouse with two buttons? Not to worry; whichever button/ear is pushed, the result is the same.

R.S.I. Bringing Change P.D.Q.

The QUERTY keyboard, relatively unchanged since the manual typewriter, may at last give way to the science of ergonomics and the ubiquity of lawyers filing suits for R.S.I., repetitive-stress injuries.

While manufacturers have long resisted any radical change in keyboard design, the incidence of R.S.I. is rapidly rising, reflected in a growing loss of productivity, rising insurance and workers compensation claims, and a series of lawsuits against keyboard manufacturers.

As always seems to happen, when the need arises, the invention is there...in this case, quite a number of them. Keyboards are being broken in two (to make a straight line from shoulder to hands), made convex (to make all fingers equal). More radical are the "chordal" keyboards, on which letters are typed with two or more buttons; the user can write with one hand. This is particularly attractive to designers and others who need one hand for the mouse or trackball.

The new boards won't be cheap ($300 to $690) but if they reduce R.S.I. to the degree promised, many will consider them a bargain. ❑

The Latest of TESS
Assorted Educational Programs from Instant to People

INSTANT SURVEY SAMPLER
MECC (Minnesota Educational Computing Corporation)
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Grades 7-12
Designed to be used with MECC's Instant Survey. Provides model surveys for use in various curriculum areas and general-interest surveys. With pre-written surveys to serve as models and guide survey construction and analysis, Instant Survey Sampler serves as an initial step before teachers begin using Instant Survey. Copy protected.
Apple II+/IIe/IIc/IIgs.

INSTRUCTIONAL DIAGNOSTICIAN
Exceptional Innovations
Teacher Training: Comprehensive; Class Management Aids; Miscellaneous Aids
Grades K-College
This menu-driven software program will equip the teacher with practical suggestions for adapting group instruction to student learning characteristics.
IBM PC and compatibles, Apple II+/IIe/IIc and compatibles, $50.50.

INTERACTIVE NOVA: ANIMAL PATHFINDERS
Scholastic
Science: Biology; Animal Organisms
Grades 5-12
Multimedia science library links full-motion video from *Nova* television series to database of text. Includes an hour-long *Nova* video; 15 short films; more than 600 text and graphics cards; and three extensive activities ranging from a field-study simulation to an ecological adventure. Copy protected. Requires videodisc player.
Macintosh Plus, $395.

INTERACTIVE NOVA: THE MIRACLE OF LIFE
Scholastic
Health: Sexuality
Grades 5-12
Students explore human reproduction and sexuality at their own pace. Featured topics include female and male reproductive systems, egg and sperm development, fertilization, fetal development, and birth. Sensitive issues of birth control and sexually-transmitted diseases are available on an included extra disk. Requires videodisc player.
Apple Macintosh 512E, Plus, SE, II, $395.

INTERACTIVE NOVA: RACE TO SAVE THE PLANET
Scholastic
Science: Ecology and Environment
Grades 5-12
Helps student understand concepts of global ecology. Water and air pollution, waste disposal, global-warming theory, and other topics are presented as worldwide issues and as case studies that illustrate how we are confronting issues in specific parts of world. Learn about interrelationships between environmental and economic decisions. Requires videodisc player.
Apple Macintosh 512E, Plus, SE, II, $395

INTERACTIVE PHYSICS
Knowledge Revolution
Science: Physics; Motion, Force, and Energy
Grades 9-College
Powerful, easy-to-use Newtonian erector set for physics. Create mechanics experiments by drawing objects on screen and defining properties, such as mass, velocity, friction. Click "Run" and watch experiment come to life. Analyze results with number tools, graphs, live vectors. Includes 340-page curriculum guide, 100+ experiments. Network version available.
Apple Macintosh 512E, Plus, SE, II, $249.

INTRODUCTION TO COMPUTING
Wings of Learning
Computers: Computer Programming; Logo and Turtle Graphics
Grades 4-8
Traces the history of number systems and computing. Employs Turtle Graphics to introduce students to LOGO and higher-level computing concepts.
Apple II+/IIe/IIc/IIgs.

INTRODUCTION TO ELECTRICITY
Shopware Educational Systems
Industrial Arts: Electronics and Electricity
Grades 9-College
Includes lessons on electric force, direct current circuits, resistance and resistors, and power voltage. Keeps records. Network version available.
IBM PC and compatibles, $320.

KATIE'S FARM
Broderbund Software
Early Learning and Preschool
Grades Presch-1
Introduces children to the computer. Reinforces object/shape recognition, spatial relationships, eye/hand coordination, cause and effect, and story-telling.
IBM PC and compatibles, Apple Macintosh 512E, Plus, SE, II/II+/IIe/IIc/IIgs, Commodore Amiga, $39.95.

KID PIX
Broderbund Software
Fine Arts: Art
Grades Presch-8
Lets students use the computer in a playful way to create art that's uniquely their own. An easy-to-use, full-faceted paint program. Includes a talking alphabet, dozens of "rubber stamps," magical screen transformations and more than 20 Wacky Brushes. Every brush and tool has a different sound effect.
Apple Macintosh 512E, Plus, SE, II, IBM PC and compatibles, $69.95.

KNOWLEDGE ADVENTURE
Knowledge Adventure
Comprehensive: Generalized Tool Programs; Database Managers
Grades 4-College
Uses the techniques of multimedia and hypertext to allow users to explore an endless maze of information covering art, history, science, literature, music, nature, architecture. All interrelated. In database, text, pictures, sounds, and graphics are all linked to one another and to a timeline. All is controlled by pointing to different objects on the screen.
IBM PC and compatibles, $79.95.

KRAFT PULPING: A KEY TO QUALITY PRODUCTION
TAPPI
Industrial Arts: Business
Grades 9-College
Covers batch digesters, continuous digesters, pulp grades, defibering, deknotting, brownstock washing, screening, cleaning, and thickening. Students complete course with an understanding of operations in the different areas of a pulp mill. Rental of courseware available. Keeps records. Videodisc.
IBM PC and compatibles, IBM InfoWindow, Sony View System, $9000.

KRAFT PULPING SIMULATION
TAPPI
Business: Industrial Arts
Grades 9-College
To be used after Kraft Pulping: A Key to Quality Production by TAPPI. Students operate a pulp mill from start to finish making all the decisions necessary to get a top quality pulp. If quality is not reached, students have opportunities to improve using a help information menu. Rental of courseware available. Keeps records. Videodisc.
IBM PC and compatibles, IBM InfoWindow, Sony View System, $3000.

KRAFT RECOVERY
TAPPI
Industrial Arts: Business
Grades 9-College
Covers recycling chemicals, black liquor, the recovery furnace, and green to white liquor. Rental of courseware available. Keeps records. Videodisc.
IBM PC and compatibles, IBM InfoWindow, Sony View System, $6000.

A LA POURSUITE DE CARMEN SANDIEGO DANS LE MONDE
Broderbund Software
Social Sciences: Geography; Foreign Language; French; Vocabulary
Grades 7-12
Introducing Where in the World is Carmen Sandiego? by Broderbund Software...in French! Clues...dossiers...even the reference book is in French.
IBM PC and compatibles, Apple Macintosh 512E, Plus, SE, II, $89.95.

LEARN ABOUT: DINOSAURS
Wings of Learning
Science: Natural History; English and Language Arts; Basic Skills: Composition and Writing
Grades 1-3
Introduces students to world of dinosaurs and how they may have died out. In this highly interactive program students can recreate on screen the environment in which dinosaurs lived and write stories about it on a simple word processor.
Apple II+/IIe/IIc/IIgs.

LEARN ABOUT: THE HUMAN BODY
Wings of Learning
Science: Anatomy and Physiology; Biology; Animal Organisms
Grades 1-3
Students will study the major organs of the body. As they interact with this animated program, the students make blood flow through the heart, the lungs breathe, and the muscles flex. They construct a skeleton by putting the bones in place.
Apple II+/IIe/IIc/IIgs.

LEARN ABOUT: ANIMALS
Wings of Learning
Early Learning and Preschool
Grades K-2
Animal homes, food, and babies are studied, along with a comparison of animal sizes and motion. Students match animals with the foods they eat, find the parents of baby animals, and count the numbers of babies. In Masks, students get to print out and create their own animal masks.
Apple Macintosh 512E, Plus, SE, II, $79; Apple II+/IIe/IIc/IIgs, $75.

LEARN ABOUT: INSECTS
Wings of Learning
Science: Biology; Animal Organisms
Grades 1-3
A program with lots of bugs. Asks students to identify insects and their parts, dissect and reassemble insects, sequence insect growth, and match insects with their homes and food. A simple, on-disk field guide provides assistance and information as students move through these stimulating activities.
Apple II+/IIe/IIc/IIgs, Apple Macintosh 512E, Plus, SE, II, $79.

LEARN ABOUT: PLANTS
Wings of Learning
Science: Biology; Plant Organisms
Grades 1-3
In this eight-part program, students begin by planting an on-screen garden and watching their seedlings grow. They'll discover parts of a plant by matching and labeling, place plants in their proper habitats, and discover how plants help people. Part of the Learn About series.
Apple Macintosh 512E, Plus, SE, II, $79; Apple II+/IIe/IIc/IIgs, $75.

LEARNING SYSTEM
Word Associates
Comprehensive: Drill and Test Generators
Grades K-College
Create and print multiple choice, fill-in, and column-match tests, as well as lesson material and hints that prepare students for the tests. Student takes the test in an instruction or test mode via computer. Instruction mode gives hints and helps the user; test mode tests, maintains scores. Separate teacher's and learner's disks. Keeps records.
Apple II+/IIe/IIc and compatibles, $50.

LETTERS, PICTURES AND WORDS WITH THE BOARS
Queue
Early Learning and Preschool: Reading; Reading Readiness
Grades Presch-1
Presents the alphabet and early words. Binkie, a tiny fairy, flits around the detailed picture screen pointing her teensy-weensy twinkling wand to specific objects, teaching visual discrimination and labeling skills. When the child makes a correct selection, the Boars come alive to familiar childhood tunes.
Apple II+/IIe/IIc/IIgs, $39.95.

MACWRITE II
Claris
Comprehensive: Generalized Tool Programs; Word Processors
Grades 5-College
Word processor which allows direct import/export of MS Word, MS Write, MS Works, and Write Now; multiple documents and columns; mail merge; footnotes and end notes; font sizes from 2 to 500 point, custom styles; direct insertion of MacPaint/PICT files, and more.
Apple Macintosh 512E, Plus, SE, II.

THE MAGIC FLUTE
Warner New Media
Fine Arts: Music; Musical Terms and History
Grades 9-College
Papageno goes high-tech. Explore the opera through a sophisticated HyperCard stack with extensive annotation, music commentary, educational examples, in-depth analysis, an opera map of the music on the CD, extra narration and musical examples, excerpts from other recordings, a full index, and even videodisc control. Copy protected. Requires CD-ROM player and speaker-amplifier.
Apple Macintosh 512E, Plus, SE, II.

MAKE TEST
Mountain Lake Software
Comprehensive: Drill and Test Generators
Grades K-College
Enables teachers to create their own exams. Users can write and organize questions using graphics and equations; enter topics, difficulty levels, and notes; select questions randomly or manually; scramble question order; and print out tests. Site licensing available.
Apple Macintosh 512E, Plus, SE, II, $119.

MAKING THE GRADE: TROLL COMPUTERIZED GRADE BOOK
Troll Associates
Comprehensive: Class Management Aids; Grades and Recordkeeping
Grades K-12
Teacher's grade book for up to 99 students per class. Uses spreadsheet-style layout. Uses student names or identification numbers. Copy protected. Network version available.
Apple II+/IIe/IIc/IIgs, $39.95.

MAMMALS: A MULTIMEDIA ENCYCLOPEDIA
Science: Biology; Animal Organisms
Grades 4-12
National Geographic Society
National Geographic's two-volume *Book of Mammals* on CD-ROM. Includes entries on 200 animals in 20 orders, 700 full-screen color photographs, 155 animal vocalizations, 150 range maps, 45 full-motion movie clips, fact boxes and in-depth essays, a classification game, and a pop-up glossary. Copy protected. Requires CD-ROM player, speaker-amplifier.
IBM PS/2, $99.

MCGEE
Broderbund Software
Early Learning and Preschool
Grades Presch-1
Provides an easy way with no words for children to become familiar with the computer while they make McGee do whatever they want him to. Includes sound effects. Part of the McGee Series.
IBM PC and compatibles, Apple Macintosh 512E, Plus, SE, II/II+/IIe/IIc/IIgs, Commodore Amiga, $39.95.

MCGEE GOES TO THE FUN FAIR
Broderbund Software
Early Learning and Preschool
Grades Presch-1
Pre-readers can run these programs by themselves. Introduces computer and helps children develop their early-learning skills. To make choices, child simply uses mouse to click on one of small pictures at bottom of screen. Each leads to a different place or activity, with realistic animation, speech and sound effects. Part of the McGee series.
IBM PC and compatibles, Apple Macintosh 512E, Plus, SE, II/II+/IIe/IIc/IIgs, Commodore Amiga, $39.95.

MEET THE COMPUTER! SERIES 1
Focus Media
Early Learning and Preschool: Computers; Computer Literacy; Familiarization
Grades Presch-2
Introduces children to computing. Integrates computer literacy and important reading- and math-readiness skills. Includes the following subjects: Surprise Boxes, Plugs and Ports, An Elephant's Memory, The Jugglers, and Seesaw with Lamb. Requires power pad.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $249.

MEET THE COMPUTER! SERIES 2
Focus Media
Early Learning and Preschool; Computers; Computer Literacy; Familiarization
Grades Presch-2
Introduces children to computing. Integrates computer literacy and important reading- and math-readiness skills. Includes the following subjects: Shape Mover, Which Key Is Missing?, Magic Shapes, How Many?, and Computer Rules. Requires power pad.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $249.

ME TOO!
William K. Bradford Publishing Company
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Grades Presch-6
A software utility program for students who control their computers via Adaptive Firmware Card. Loads scanning routines on all Explore-a-Series screens, for switch users. Includes two different custom overlays for expanded keyboard users. Offers a touchscreen calibrator for more precise touchscreen operation. Part of the Explore-a-Series.
Apple II+/IIe/IIgs, $95.

MICKEY'S 123'S
Walt Disney Educational Media
Early Learning and Preschool: Mathematics; Basic Skills; Number Systems and Counting
Grades Presch-K
With Mickey and friends, children learn about numbers and counting in this easy-to-use program. With 4 separate locations, 18 background screens, and 60 responses from Mickey and friends, children control Mickey's actions as he travels around town to plan a party.
IBM PC and compatibles, $39.95.

MICKEY'S ABC'S
Walt Disney Educational Media
Reading: Reading Readiness; Early Learning and Preschool
Grades Presch-K
Preschoolers learn letters and words with Mickey. At the fair, Mickey joins in many events and visits the animals. With 10 colorful background screens and more than 80 humorous responses, children learn the alphabet at their own pace.
IBM PC and compatibles, $39.95.

MICKEY'S COLORS AND SHAPES
Walt Disney Educational Media
Early Learning and Preschool
Grades Presch-K
Children help Mickey perform his 3 magic acts as he juggles, pulls animals out of his hat, and magically creates pictures made from 5 shapes and 8 colors. Features 130 objects, 150 responses; children can print up to 35 pictures. Compatible with disney's Sound Source.
IBM PC and compatibles, $39.95.

MICKEY'S CROSSWORD PUZZLE MAKER
Walt Disney Educational Media
Reading: Vocabulary
Grades K-6
Children, teachers, and parents can create, print, and solve crossword puzzles using Disney characters and backgrounds. Word and picture clues help solve the puzzles while building children's vocabulary and reading skills. Compatible with
Disney's sound Source.
IBM PC and compatibles, Apple II Series, $29.95.

MICKEY'S JIGSAW PUZZLES
Walt Disney Educational Media
Early Learning and Preschool: Logic and Problem Solving
Grades K-3
Mickey and his friends are featured in 15 colorful, animated puzzles. Children can choose from multiple skill levels using 4 to 64 puzzle pieces. All puzzles can be made from square, silhouette, or standard jigsaw shapes for added challenge. Compatible with Disney's Sound Source.
IBM PC and compatibles, $49.95.

MICKEY'S MAGIC READER
Sunburst Communications
Reading: Reading Readiness
Grades 1-2
Students read a sentence composed of words and a key picture for which students must choose the correct word. Then they decide what happens next in the story. Copy protected.
Apple II+/IIe/IIc and compatibles, $65.

MICKEY'S MEMORY CHALLENGE
Walt Disney Educational Media
Early Learning and Preschool
Grades K-3
Concentrating is kid's play. Students are challenged to see if they can match up words, objects, or Disney characters. Offers helpful memorization and vocabulary building exercise, visual recognition exercise, and similar and non-similar exercise. Compatible with Disney's Sound Source and Windows 3.0.
IBM PC and compatibles, $29.95.

MICROZINE JR.
Scholastic
Logic and Problem Solving: Computers; Computer Literacy; Applications
Grades 1-4
A magazine on computer. Each issue includes four programs to help students develop critical thinking skills and learn key curriculum concepts.
Apple II+/IIe/IIc/IIgs, each issue $19.95.

MORE MYTHS, MAGIC AND MONSTERS
Word Associates
Reading: Reading In Content Areas; Comprehension Skills
Grades 4-8
With emphasis on Greek myths, develops the skills of recall, sequencing, defining the main idea, identifying the speaker, figurative language, drawing conclusions, and recognizing mood. The tutorial mode gives explanations and help for every answer choice, correct and incorrect. Network version available.
Apple II+/IIe/IIc and compatibles, IBM PC and compatibles.

MORE POW! ZAP! KER-PLUNK! ART ALBUM
Queue
Comprehensive: Generalized Tool Programs; Graphics Generators
Grades 4-8
A double-sided disk packed with an assortment of more backgrounds and clip art to create new comic book stories. To be used with Pow! Zap! Ker-Plunk! The Comic Book Maker! by Queue.
Apple II+/IIe/IIc/IIgs, $24.95.

THE MOVING CRUST
Focus Media
Science: Earth Science
Grades 7-12
Students seek out evidence suggesting that the continents were once joined. The "Institute" provides maps, tools, a library, and even transportation. As students travel around the world, studying the ocean floor, fossil distribution, rock formations, and glacial striations, they collect evidence to prove or rebut the theory of plate tectonics.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $99.

MURPHY'S MINERALS
MECC (Minnesota Educational Computing Corporation)
Science: Earth Science
Grades 3-9
A discovery/learning simulation. Students conduct a variety of tests on unknown minerals to learn about their characteristic properties and identify them by their physical properties. The test results can be recorded. Copy protected.
Apple II+/IIe/IIc/IIgs.

NATURE GRAPHICS
Creative Pursuits
Science: General Science; Comprehensive; Generalized Tool Programs; Graphics Generators
Grades 2-8
A collection of over 100 color graphics including: Forest, Jungle, Dinosaurs, Ocean, Astronomy, Desert, Farm, Earth
Science, Prehistoric Life, Coastal, Marshland, Field, Prairie,
and Decorative Borders. A teacher's handbook includes lesson plans and student activities.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $29.95.

THE NEW PRINT SHOP
Broderbund Software
Comprehensive: Generalized Tool Programs; Graphics Generators
Grades K-12
An all-new version of The Print Shop by Broderbund. Features increased resolution; greater design flexibility; and new-drawn graphics (including multicolor and full-panel designs). Network version available.
Apple II+/IIe/IIc/IIgs, $59.95; IBM PC and compatibles, $69.95.

BEST COPY AVAILABLE

THE NEW PRINT SHOP GRAPHICS LIBRARY: PARTY EDITION
Broderbund Software
Comprehensive: Generalized Tool Programs; Graphics Generators
Grades K-12
Users can create party accessories ranging from personalized invitations to place cards, banners, posters, gift tags, and wrapping paper. Includes more than 100 graphics, borders, and fonts for every party occasion...many of them multicolor,full-page designs. Requires the New Print Shop or The New Print Shop Companion.
Apple II+/IIe/IIc/IIgs, $24.95; IBM PC and compatibles, $34.95.

THE NEW PRINT SHOP GRAPHICS LIBRARY: SCHOOL EDITION
Broderbund Software
Comprehensive: Generalized Tool Programs; Graphics Generators
Grades K-12
Contains more than 100 graphics—nearly 25% of them multicolor—and many single and multicolor full-panel designs. Includes chalkboards, chemical beakers, fall leaves, schoolbuses, cheerleaders, and dozens more. Requires New Print Shop or New Print Shop Companion.
Apple II+/IIe/IIc/IIgs, $24.95; IBM PC and compatibles, $34.95.

THE NEW PRINT SHOP GRAPHICS LIBRARY: SAMPLER EDITION
Broderbund Software
Comprehensive: Generalized Tool Programs; Graphics Generators
Grades K-12
More than 100 additional borders, graphics, and fonts for posters, memos or flyers. Graphics include Easter eggs, a honey bear, a flamingo, baby bottle, bicycle, carousel, butterflies, burgers and many more. About 25% of the graphics are multicolor. Requires The New Print Shop or The New Print Shop Companion.
Apple II+/IIe/IIc/IIgs, $24.95; IBM PC and compatibles, $34.95.

NEWSPAPER LITERACY
Educational Activities
Reading: Reading In Content Areas
Grades 3-4
Familiarizes students with all parts of a newspaper and how it is organized through a tutorial lesson which describes the various parts of the newspaper, how to locate them, and what information they contain. Keeps records. Copy protected. Network version available.
Apple II+/IIe/IIc and compatibles, $119.

THE NEWTONIAN SANDBOX
Sunburst Communications
Science: Physics; Motion, Force, and Energy
Grades 10-College
Provides students with a new approach to studying such motion phenomena as ballistic trajectories, one- and two-dimensional oscillators, and planetary orbits and comets. Users may prepare a model of forces and, after specifying initial conditions, see resulting trajectories.
Apple Macintosh 512E, Plus, SE, II+/IIe/IIc/IIgs, Commodore 64/128, IBM PC and compatibles, Tandy 1000/1200.

1-2-3 ORDONNÉ MOI
Sunburst Communications
Foreign Language: French; Vocabulary
Grades K-2
Helps beginning readers make the transition between pictures and their corresponding words while it teaches sequencing skills. Trax, an animated dog, helps young readers. Contains three levels of instruction. No word on any upcoming cat version.
Apple II+/IIe/IIc/IIgs $65.

ONE OF A KIND
Sunburst Communications
Reading: Vocabulary
Grades 3-College
Designed to expand students' vocabularies and to enhance creativity. Presented with three different catgories, students are asked to enter four words. The more original and unique the answer, the greater the score. Copy protected.
Apple II+/IIe/IIc and compatibles $75.

PAPERMAKING: THE PROCESS AND THE PRODUCT
TAPPI
Industrial Arts: Business
Grades 9-College
Provides a basic or thorough introduction to papermaking. Covers the entire process of producing paper form the woodland operation to pulp and paper mill procedures to finishing process. Keeps records.
IBM PC and compatibles with videodisc player, IBM InfoWindow, Sony View System, $9000.

PC GLOBE
PC Globe
Social Sciences: Geography
Grades 7-College
A computerized atlas offering instant profiles of 177 different countries. Provides an integrated package of maps, graphics, and data. Allows user to cross-compare all data between countries. Includes time zones, currency conversions, point-to-point distances.
IBM PC and compatibles, $69.95.

PC USA
PC Globe
Social Sciences: Geography
Grades 4-12
Integrated package of maps, graphics, and data providing instant detailed profiles of the 50 states and Puerto Rico. Maps of the country, individual states, and major regions as defined by the U.S. Census Bureau are included. Database information includes crime rates, climate, history, education, and more.
IBM PC, Apple IIgs, Macintosh Plus, $69.95.

PEOPLE AND PLACES GRAPHICS
Creative Pursuits
Social Sciences: Comprehensive; Tool Programs; Graphics Generators
Grades 2-8
A collection of more than 100 color graphics including Maps; Landmarks; 20th Century; Fashion; Small World; Careers; Community, Ancient Worlds, and U.S. History. A teacher's handbook includes lesson plans and student activities.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $29.95.

PERCEPTION, INC.
IRI Skylight Publishing
Logic and Problem Solving
Grades 3-5
Focuses on concept development, concept demonstration, hypothesis testing, and logical problem-solving skills. Teacher management system allows monitoring the progress of all students as they work.
Apple II+/IIe/IIc/IIgs, $59.95. ❑

Research & Reports

As The Twig Is Bent. Nearly everyone agrees that children should be read to; but how about computer programs that will engage them at a young age? Parents can do worse than subscribe to Prodigy where, for $9.95 a month, young folks can have unlimited access to "Reading Magic Library" by Tom Snyder Productions, custom-created for Prodigy with a new story added every month. 800 776-3449.

§

From Broderbund: "KidPix," a graphic arts program just for kids, $59.95, best with color and mouse. Just out: "Kid Pix Companion," $39.95, so far only for the Mac, which lets young folks become producers using their own graphics and sound FX. Also, "Playroom," for kindergarten through second grade, where a click of the mouse animates various objects. 415 492-3900.

§

For better graphics and sound and animation, try "A Silly Noisy House" on CD-ROM from Voyager, $59.95 for Macintosh. 301 451-1383.

§

Software Publishers' Top Picks. Although announced in March, the SPA Excellence in Software Awards merit a reminder. The judging is in seven education software categories with a special "critics' choice" award for overall excellence.

Critics' Choice Award for Best Education Program (tie): "Geometer's Sketchpad," Key Curriculum Press, and "Interactive NOVA: The Miracle of Life," Scholastic.

Best Early Education Program: "KidPix," Broderbund Software. Also received a General Software Award for Best User Interface in a new program.

Best Elementary Education Program: "Reader Rabbit," The Learning Company.

Best Secondary Education Program (tie): "What's My Angle?," Davidson & Associates; and "Interactive Nova: The Miracle of Life," Scholastic.

Best School Productivity/Creativity Program: "The Bank Street Writer for Macintosh," Scholastic.

Best Education Tool Program: "SimAnt: The Electronic Ant Colony," Maxis.

Best Special Needs Program: "Talking TypeQuick for the Blind," TypeQuick.

Best Home Learning Program: "Where in America's Past is Carmen Sandiego?," Broderbund Software.

§

Reviewing the Reviewers. We don't know if this is the route to that "world class" math we are promised from Washington, but some publishers take the view that a marriage of math and arcade games might do the trick:

Operation Neptune. Math and problem solving, fourth grade and up, The Learning Company, for MS-DOS, supports AdLib, Sound Blaster, Roland sound cards. Price $59.95.

Says *Technology & Learning*: "Designed to challenge the most dedicated Nintendo freak...a shoot-'em-up arcade game with interludes of math problems disguised as navigation questions...cleverly written, exciting...encourages creative thinking...superlative example of the best that arcade action can offer education."

Mutanoid Math Challenge. Math, grades 2-9, for MS-DOS with CGA or better graphics; Macintosh version available soon. Legacy Software, 800 532-7692. $69.95; lab packs available.

The Mutanoids are a group of aliens made up from cast-off junk (to give you an idea, Little John is mostly porcelain toilet) and the player represents the planet Earth. The format owes a nod to Scrabble but with the tiles used for mathematical symbols.

The "player" alternates turns with the aliens to see which side gets "slimed." Strategy, as well as accuracy, is important.

Lots of wisecracks and wordplay. Three levels allow the player to customize difficulty plus various options .

The reviewer from *Technology & Learning* found it fun but wished math errors were explained; also, students compete only against aliens, not one another. Also, better students jaded by same Scrabble format.

Overall: Good for stronger math students who respond to arcade format; weaker students may need occasional encouragement.

§

RE: Radiation. While studies by OSHA and others show little reason for concern about health risks from computers (including pregnant women), those who are not convinced may want to try a radiation detector that measures very low frequencies: The Tracer TR-100 from the Shield Corporation, 450 Valley River Center, Eugene, Oregon 97401, 800 543-3444. Another approach is the NoRad radiation shield from NoRad Corporation, 1549 11th Street, Santa Monica, California 90401, 800 262-3260.

§

Picture It! A foreign language is made easier when the student can both see and hear and Picture It! does this quite adequately. Available for Macintosh and 640K MS-DOS, Picture It! has more than 500 pictures with digitized pronunciation in either Spanish or English. The user can also enter pictures, text, definitions, and even audio (if a speech digitizer is available).

Electronic Learning recommends. Published by Penton Overseas, 800 748-5804. $69.95.

§

The Great Solar System Rescue. If there are hints of *Star Trek* in this offering from Tom Snyder Productions, it is probably impossible to avoid. There are the usual crises of probes lost in space; and students, organized as expert teams, have to get them back.

This videodisc simulation can be used with or without a computer.

continued on following page

2MB Macintosh Plus are minimum computer specs, and also needed are a laserdisc player, hard drive, and interface cable, with barcode reader or remote control optional. Grades 5-8.

Everyone seems to like this. *Electronic Learning* gave it a "highly recommended;" *Technology & Learning* said, "Sets a standard of excellence that could very well result in an increased level of quality in interactive multimedia materials."

Package includes videodisc, two floppies, teacher's guide, 28 student manuals, blackline masters. $299.95 from Tom Snyder Productions, 90 Sherman Street, Cambridge, Massachusetts 02140. 800 342-0236.

§

Advice on Partnerships. Anyone interested in promoting partnerships with the community should read: 1) *School to Work Connections: Formulas for Success*, a 29-page booklet from the Department of Labor about ten school-business partnerships. Free from Office of Work-Based Learning, Employment and Training Administration, 200 Constitution Avenue N.W., Washington D.C. 20210. Telephone 202 523-0281. 2) *The School-Community Cookbook: Recipes for Successful Projects in the Schools*, a 234-page book featuring advice from 43 Maryland administrators, teachers, parents, and various professionals on how to tap into community resources. $6.90 from Fund for Educational Excellence, 605 North Eutaw Street, Baltimore, Maryland 21201.

§

Golden Oldie. "Mammals: A Multimedia Encyclopedia," a CD-ROM offering from National Geographic and IBM, has been out awhile (since 1990) but remains impressive ("Every library that has CD-ROM should buy one" – *Library Journal*). Needs CD-ROM drive, of course, mouse, MS-DOS with 640K RAM, speakers. 800 368-2728. Canada 800 638-4077. Fax 301 0921-1575.

§

Starlight Star Bright. Trendspotters note Jostens Learning's recent investment in Starlight Networks, a developer of multimedia networking technology. Starlight already has products which allow large workgroups simultaneous access to networked video and video applications that can coexist with desktop computer applications on the same network.

Meanwhile, Bright Star Technology, Inc. (Bellevue, Washington) has become part of Sierra On-Line, a leading publisher of entertainment and educational software, one of several acquisitions and new relationships designed to launch Sierra more firmly into educational software.

§

The Interactive Multimedia Child. Lights, camera, action. Narration, music, sound FX. "Interactive Storytime," the first interactive multimedia CD-ROM-based product from Multimedia Products Corp., uses all media to keep kiddies interested as they click on any object and hear it pronounced, spelled, and explained. $49.95, Multimedia Products Corp., Spring Valley, New York. 914 426-0400.

§

More Dots, More $$$. Laser printers, which already do a creditable job at the 300 dpi (dots per inch) industry standard, may be moving to a 600 dpi standard in the future if the costs of manufacturing come down. Lexmark, Inc., of Lexington, Kentucky, a privately-owned spin-off from IBM, and QMS of Mobile, Alabama, are both offering a 600 dpi for about $5,000. (The heavy-duty HPs and Apples are $2,500-3,500 for 300 dpi and the slower models are under $1,000.)

The 600 dpi technology has four times as many dots as 300 dpi (360,000 dots per square inch compared to 90,000) and has been around for awhile but at $10,000 and up per printer has not gained wide acceptance except with graphic artists.

Way to bet? Better technology almost always wins out.

§

Limited English, Limited Help. According to a Department of Education report, disadvantaged children with "Limited English Proficiency" are routinely denied remedial help under Chapter I services. This is because, the report suggests, their teachers are operating on the assumption that their pupils must first attain proficiency in English. This may not happen until students are older, and at that time they will no longer be eligible under Chapter I.

The report is available (free) from the Office of Policy and Planning, U.S. Education Department, 400 Maryland Avenue, S.W., Room 3127, Washington, D.C. 20202. 202 401-0590.

A separate report, by the Latino Commission on Education Reform in New York City schools, noted that because of the language difficulties which Hispanic students face, the dropout rate for Hispanic ninth graders is about one in four, which is some 40% higher than for other students. Barely half of Hispanic students read at or above grade level in English.

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All Alone by the Telephone. For travelling Macintosh freaks, here's the picture, the problem, and the solution:

The picture: Apple's notebook "Powerbook" computer provides Macintosh lovers with a highly portable road warrior. Its software, "Appletalk Remote Access," allows the Powerbook to connect to another Mac or a network of Macs and use any files, programs, or peripherals.

The problem: to provide such access to a home computer requires the services of a dedicated Mac which just sits and waits for the phone to ring. Cumbersome, costly, and unlikely.

The solution: Shiva Corporation of Cambridge, Massachusetts, is bringing out the Lanrover/L, a stripped-down computer (no disk drive, no monitor, no keyboard) which provides the Appletalk connection at a reasonabe list price of $699. ❑

STATS

Sex and the Single Girl. Number of families headed by single women: 6.7 million, up from 5.5 million in 1980, an increase from 17% to 20%

Poverty rate of women with single children in 1990: 42%, up 2% from 1980.

Poverty rate for single women with children under six: 57.4%, up from 56% in 1980.

Total number of persons rated below the poverty level: 31,740,000, about 1 in 8.

– U.S. Census Bureau.

Quick Quiz:

How many Americans are native born? 228,900,000.

How many Americans were foreign born? 19,760,000, or 7.9%.

How many Americans entered the U.S. between 1980 and 1990? 8,660,000.

How many speak a language other than English at home? 31,840,000.

How many speak Spanish at home? 17,345,000.

How many speak an Asiatic or Pacific Island language at home? 4,471,000.

Which states have the smallest percentage of foreign born? Alabama, Arkansas, Kentucky, Mississippi, West Virginia – fewer than 1% of total population.

Which states have the smallest percentages of high school graduates? Alabama, Arkansas, Kentucky, Mississippi, West Virginia – about 65% compared to national average of 75%.

– U.S. Census Bureau.

El Dropouts. Studies in New York City show one in four Latino ninth graders don't finish high school and the dropout rate is 40% higher than for all other students. Problem: by the time they enter high school, Latino students are already far behind in academic achievement.

$chool $pending. The highest per pupil expenditure is in Alaska (over $22,000 in the North Slope Borough School District), the lowest in Montana ($1,975 in the Fortine Elementary School District). The lowest in Alaska ($5,605) is higher than the highest in Alabama, Florida, Georgia, Hawaii, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, West Virginia; yet Hawaii has an unusually large number of *EPIEgram* subscribers, third among all states on a proportional basis, behind only Alaska and Oregon. States in which the highest spent is four times or more than the lowest include California, Washington, Montana, Utah, North Dakota, Illinois, Texas, and New York. In some states, the spread is enormous: New York, $19,238 to $3,127; California, $11,740 to $3,692; Illinois, $14,316 to $2,253; Montana, $10,495 to $1,975; Texas, $14,514 to $2,150; Washington, $14,229 to $3,375.

Trimming the Fat.

Number of Federal government employees in 1980: 16.4 million.

Number of Federal government employees in 1992: 18.6 million.

Number of manufacturing jobs as of June, 1992: 18.2 million.

– Department of Labor.

The New Segregation.

Percentage of African-American students in the Northeast attending public schools where enrollment is 95% non-white: 43.

Percentage of black children in the South attending such schools: 20.

– "Harper's Index."

Penitentiary U. Statistics are cited to support the idea that criminal recidivism is reduced by education. Prison inmates who earn a college degree while incarcerated return at a significantly lower rate (26.4%) than those who do not (44.6%). Obviously, however, only those who wanted to do better in the first place, and only the more intelligent prisoners, would have gone after college degrees at all; when this is considered, the difference seems discouragingly small. Significant statistics:

- Four or five of every ten adult prisoners in federal and state prisons can neither read nor write.
- Ninety per cent of all adult prisoners are dropouts and half have less than an eighth-grade education.

Elementary, My Dear Watson. The call for "World Class" math and science skills has not been heard in half the fourth-grade classrooms. National Assessment of Education Progress says only 50% of fourth-grade students get some science education "almost every day." As many as a third get none at all or only "about once a week."

Mathbuster States and Why. Most everyone knows that students in six more or less contiguous states, all north and central, lead the nation in scores on standardized math tests (Montana, North Dakota, Iowa, Nebraska, Minnesota, Wisconsin).

What no one knows for sure is why, but there are some interesting indicators: North Dakota also leads the nation in parents who are college graduates with 49%, and there are almost no dropouts among parents in the "mathbelt." Money does not appear to be a factor since per capita incomes in all the states except Minnesota are below national average. Some suggest the work ethic plays a large role. ❑

By 1983, there were 300 publishers and 2,700 programs. In the 1987-88 edition of TESS, some 625 software publishers were listed with more than 7,700 programs available. In the current electronic database (available through the States Consortium for Improving Software Selection) there are nearly 1,200 software publishers and almost 12,000 software programs in just the K-12 market. This provides an unrivaled menu of products for learning.

Paralleling the growth in producers of individual software programs, Komoski notes, are the companies which produce Integrated Learning Systems. Prior to the advent of the microcomputer, there were two integrated systems companies. Two years ago, when EPIE produced its first report on ILS, there were 11 companies. (Note: there has been some consolidation recently.)

A key message from Komoski: educators must be aware of the tension between the old soft tech (epitomized by the standardized, one-size-fits-all textbook) and the new high-tech technology (computers, multimedia, CD-ROM) which provides a variety of options and products custom-tailored to the learner's needs.

In soft tech (and this includes filmstrips and A/V) the technology was largely used in a group environment with the teacher there to interpret and direct and support the media.

Most teaching in the past essentially put all students through the same experience. The child was the raw material, the school the processing plant. The teacher was allowed considerable latitude but the students basically worked with standardized texts and were measured by standardized tests. (Since good grades reflect glory on both student and teacher, this often encouraged teachers to "teach the test.")

All this can be remarkably changed when educators go high tech and students work individually or in collaborative groups, with the technology, not the teacher, delivering the information. Since there is so much room for individual differences, even if students use the same software, they will experience it in different ways.

Without being actively involved, the teacher does not have a good measurement of what the student does and does not know. Inspired assessment will be needed in the future, everything from tests which adjust the questions to the student's knowledge of the subject, to the same sort of testing doctoral candidates undergo, an oral defense in a peer-group setting.

In any case, the model of technology we have been using is the model of exploitation, noted earlier as fitting the assembly-line mentality of the late 19th Century and too much of the 20th. Here work was broken into such small segments that even uneducated workers could learn a repeatable process quickly. The inevitable result was that work became repetitive, boring, and dehumanizing.

In schools as in factories, we are finding that people work better, learn better, and attain more, when they are not standardized and made to fit in with an assembly line, when work is not broken into such small segments that any worker can be quickly trained. The 21st Century is going to be much more demanding. We can see it already as the marketplace calls for better trained workers, people able to work with minimum supervision and who can be trusted to think creatively and see the totality of their function. It has become obvious that the individual is more productive in congenial groups and our education must reflect this. Until now, the American education system has been a kind of Procrustean bed, trying to make everyone learn the same things the same way. It hasn't worked very well for quite some time.

The truth, according to Komoski, is that individuals learn different things in different ways, have strengths and weaknesses which make them vulnerable as individuals but fully functional as part of a group. There one's strengths are allowed to emerge and one's weaknesses are compensated for by the strengths of others.

Choosing software is not made easy if one stays mired in a 19th-Century approach, for the values in educational technology are not always immediately clear and obvious. The choice, broadly speaking, is whether you are buying the 19th-Century exploitive technology or are able to move philosophically into a new and emerging concept of what he calls "cooperative technology:" technology designed to cooperate with the learner's needs, interests, style, and so on, as well as technology designed to be used cooperatively.

The best guides, Komoski suggests, are the learners themselves. Today students make many media decisions on their own and they are uniquely qualified to help determine what programming teaches them best. The researchers at EPIE Institute began to realize this some years ago when a 12-year-old complained about an ILS: "Why do they have to use the same algorithm over and over?" This level of sophistication is not unique among a generation raised on technology everywhere but at school.

The truth, says Komoski, is that the ulimate evaluator is the learner. It is the learner who must be motivated to open the receptors and partake of the product. Without the opening up, learning is a dismal punishment; but when it happens, the life and future of the student can suddenly change...forever.

It is "values," not just "value," that educators must look for as they evaluate educational technology. By doing this they can help foster a revolution in education that has been building slowly for the past quarter century – only now there is a new urgency, lest America miss the promise of the very technological age it did so much to bring about.

To Be Continued....

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EPIEgram

The Newsletter of Software and Systems for Learning

Volume 19, Number 2 November 1992

One in Three Computer Dollars Lost to Bureaucracy

In the battle for available dollars for school computers, management somehow diverts about a third of them to administrative purposes. According to the Software Publishers Association, U.S. schools spend $2.7 billion annually on computer hardware and software, of which only $1.9 billion is used in instruction and nearly $800 million for administration.

Of the remaining one billion nine, the median spent by each school on software was between $1,000 and $2,500, a rather insignificant sum. Median spending on both hardware and software was between $5,000 and $10,000, or less than $10 a student. (Fewer than 10% of school districts spent over $100,000.)

Another statistic—that schools spend more on hardware than software, the ratio being about 4 to 1 for senior high schools and 3 to 1 for elementary—would suggest that even when there are computers, they are greatly underutilized.

As noted in *EPIEgram* previously, schools in general spend only about 1% of total budget on educational materials, including textbooks and computer hardware and software. EPIE Institute, which has studied the problem extensively, says a figure between 3 and 5% is required.

Part of the problem is that many educators still don't know where to look for information on software despite The Educational Software Selector (TESS), the database of educational software created by EPIE Institute. However, the growth of the States Consortium for Improving Software Selection (SCISS), which distributes TESS in member states, shows that a new class of educator is emerging.

The electronic version of TESS contains complete information on more than 12,000 educational software programs, making it easy for teachers to find needed software quickly, often within a minute or two. ❑

New York *Times* Columnist Lauds EPIE's TESS

Peter H. Lewis, whose weekly column "Personal Computers" is one of the most widely read in the industry, devoted an entire column recently to the problem parents have of finding suitable software for their children to use on the home computer.

After noting his own experiences in going to software stores (he found Egghead to be the most cooperative), Lewis spent much of the rest of the column quoting Ken Komoski, Executive Director of EPIE Institute.

Among Komoski's thrusts was the fact that the average expenditure for software in schools is but $6 per child. Yet parents with computers are likely to spend between $300 and $800 on educational programs, Mr. Komoski said.

Judging by the flood of calls to EPIE in response to the Lewis column, there are plenty of frustrated parents out there trying to find out how to get the right software for their children. Most of the callers left the impression that they were not getting much help from the local schools.

In Peter Lewis's opinion, the best way to find good software was to turn to EPIE's TESS database – no news to anyone who has read an issue of *EPIEgram*. ❑

SCISS/TESS Update Begins on Page 5

More of *The Latest* Software from *TESS*!

Five Big Pages Loaded with Program Data and Descriptions

Editorial

Can Any Human Institution Reform Itself?

The short answer is, "No."

The longer short answer is, "No, not without the impetus of crisis or calamity or outside pressure."

The longer answer is that change seems to take at least one generation for the simple reason that most *people* can't or won't change, even when the need is obvious and close at hand.

A retired teacher I know was telling me how much he enjoyed his leisure and the computer his children had given him as a retirement present. "It's terrific," he said. "I spend hours at it, I'm learning all kinds of things and the time just flies."

I asked him if he had ever used the computer in his teaching. No. I asked him, if the computer was so great for him, did he not think it would have been equally absorbing and useful and motivational for his students? "Well," he said, his rationalization firmly in place, "the school didn't have the money." I asked him if they had a football team. He changed the subject and I haven't been invited to his house since.

He sensed my growing frustration with the status quo, this disinclination or inability of the educational establishment to set about any meaningful reforms.

We have considerable contact with Texas educators through the States Consortium for Improving Software Selection. I'll come out and say it: of all the states in the Consortium, Texas is moving most briskly toward meaningful change.

H. Ross Perot evidently gets some credit for some of the reform that is taking place down there, though there are those who downplay it. Our remarks on Texas are not meant to be an endorsement of Mr. Perot. But it does seem odd that the two strongest opponents of Perot's reform efforts in Texas (according to an article in the New York *Times*) were the teachers' union and the coaches' association.

Looking at America today—and the educational bureaucracy in particular—one gets glimpses of what the U.S.S.R. must have been like in its last days. Bureaucrats desperately hanging on to their little fiefdoms as the whole gummy stew slides toward oblivion.

I've begun to believe that overall reform is impossible and that it may not even be desirable. Revolution never comes from above but from below. To legislate reform from above is to move another step closer to some sort of fascistic regimentation, another version of the Procrustean bed, another arena for ignorant armies to clash by night.

Case in point: The usually astute Albert Shanker (President of the AFT) wrote a column recently on the low level of mathematics teaching, how few teachers were really trained to teach math, etc., etc. Yet nowhere did he suggest that mathematics can be taught other than by fully trained teachers in a classroom. It is as if the computer and several thousand programs on math and science did not exist; it was as if the only solution to better math teaching was something that isn't going to happen in the foreseeable future: better math teachers.

One thing educators know how to do is obfuscate. Anyone who has an idea for improving education that requires change immediately gets jumped on by everyone who thinks his ox might get gored, somewhere, somehow.

My wife, an ex-teacher, has a very simple answer to teaching. "If the teacher believes," she says, "any approach works."

Mr. Whittle wants to run schools at a profit. Fine. People want to teach their children at home. Okay by me. People want to start buying computer software for kids to use at home and on weekends and during vacation so they learn some of those things they don't get in school. Terrific.

In fact, anything which puts pressure on schools to change, anything which threatens the complacency of bureaucracy, anything which rattles their cage and speeds up the process of reform is a plus.

And, while the school systems continue to fail the kids, the most promising instrument of change in my book is the use of the computer in the home. I wish I had school-age kids. I'd see they got educated in spite of the system!

Earl L. Fultz
Editor & Publisher

Guest Columnist

(Back to the Future)

(Editor's note: While rummaging through the files, we found a column written in 1967 by Ken Komoski, Executive Director of EPIE, the year the Institute was formed. We believe the following excerpts—originally written for EPIE Forum, *a predecessor publication to* EPIEgram*—may be instructive.)*

Director's Column
November, 1967

The talk about innovation, technological revolution and enlightened action in American schools can be heard everywhere. It is a promising time to be a professional in education. To transcend the talk, to translate the promise into action, to approach what John Goodlad has called "the more sobering business of determining where we are, assessing what needs doing and why," may require nothing short of a complete rethinking of the educator's professional responsibilities – and particularly those responsibilities related to the selection and use of technology in education.

We cannot continue to teach, to make do with a conglomeration of "aids" and to hope that our teaching is somehow improving. There is a real need for an empirical approach to the effective integration and systematic improvement of educational innovations. This is the need which the EPIE Institute hopes to help educators fulfill.

Teaching has always been the educator's major responsibility. In fact, for centuries it was his/her only clearly recognized responsibility. However, toward the end of the last century, educators in European schools began to introduce uniform general examinations as a means of evaluating educational progress, and with it, they drew attention to the educator's responsibility to evaluate.

Originally, this new responsibility meant one thing only – evaluation of students. In time (spurred by the thinking of doctor-journalist, Joseph Mayer) a new facet was added to educational assessment, the evaluation of teaching methods.

(At this point Mr. Komoski established that the educator has three responsibilities: teaching, innovating, evaluating.)

Yet for all the attention and approbation that innovation is receiving at present, the responsible professionals know that there are pitfalls awaiting them if they engage in innovation simply for the sake of being "up-to-date." To avoid these pitfalls means finding out as much as possible about the nature and effectiveness of specific technological advances and the hardware and software by means of which they are carried to the student.

When these three responsibilities (teaching, innovating, evaluating) are at work within the educator, they can create dynamic, professional integrity which will greatly increase the probability that changes in education will be based on specific changes in educational facts rather than on superficial shifts in educational fashion.

(Mr. Komoski then noted that the purpose of EPIE Institute is to provide educators with impartial information about innovative products and to help them evaluate these products.)*

The responsibility of educators is not only to teach but to teach well. To meet this responsibility, they must innovate. But to identify innovations of value, they must also evaluate. This is the purpose and the promise of EPIE Institute (Educational Products Information Exchange).❑

* EPIE's TESS (The Educational Software Selector) database has proven to be especially valuable to educators intent on innovation in the classroom. EPIE's other database, the Integrated Instructional Information Resource (IIIR) is used to evaluate educational materials in relation to their degree of alignment with local school curricula. In addition, EPIE's evaluation of so-called integrated learning systems (ILSs) has helped many schools make informed decisions about these high-end, high-cost systems.

EPIEgram

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Earl L. Fultz, Editor & Publisher
P. Kenneth Komoski, Executive Director, EPIE Institute
Pat Lutzky, Manager, SCISS\TESS

New Ways

(Editor's note: If you believe (as we are inclined to do) that school reform will come more readily from the bottom up than from the top down, educators should start sharing their good ideas. EPIEgram *will serve as a forum if you just send your ideas in. Here are a few we really like.)*

In Hull, Massachusetts, the high school has established a "Saturday School" for freshmen and sophomores having trouble keeping their grades up to par. At Hull High, anyone with a failing grade is ineligible for extracurricular activities, including sports. Students like the informal environment, the 10 to one student to teacher ratio. No discipline problems, teachers report. Parents like it, too.

In Phoenix, Arizona, a variety of programs under the banner of "Think Tank" (winner of the 1991 Anderson Medal of the Business-Higher Education Forum), help at-risk students by getting them to take college-level courses while still in high school. By breaking down the barriers that separate levels of education, the transition—beginning just with the idea that it is possible—is greatly enhanced.

Educators fearful of computers find that by enlisting the help of students who are already deeply involved in technology, there are a number of immediate and long-term benefits: they get over the technology barrier, they motivate often bored students, find they have more free time for the problem students, and the class gets the advantages of programs that fit their needs – all this without having to display a lack of skills to the class.

When budgets keep soaring...and revenues don't, and local administrations seem unable or unwilling both to cut costs and improve education in these recessionary times, some school districts are turning to private companies for necessary management skills. Among the latest to do so is the Baltimore school system, which has contracted with Education Alternatives, Inc., a publicly-held company based in Minneapolis, to manage nine of its schools. The firm, formerly a subsidiary of Control Data Corporation, and which has some ten contracts for the private management of public schools, ran into a bit of a buzz saw in Baltimore. The problem is the one which faced their fellow-revolutionist Lenin, when he was quoted as saying, "You can't make an omelette without breaking some eggs." Change causes problems – such as losing one's job or having to do things differently.

Despite the critics, enthusiasts abound: schools have been painted, repair work gets down in hours instead of years; even the 8,000-member Baltimore Teachers Union has gone along with the deal, anticipating a more cost-effective operation due to a smaller, more efficient administration. And listen to this: the budget for educational materials has been upped from $60 per student to $150. *EPIEgram* is inclined to forgive a lot when the budget for educational materials rises by 150%.

The drug problem in schools is so pervasive, some are starting education programs in kindergarten. A new publication from the U.S. Department of Education highlights some of the programs that have worked. It contains how-to information and winning tactics from more than a hundred schools. For free copies of *Success Stories from Drug-Free Schools: A Guide for Educators, Parents & Policymakers*, write: National Clearinghouse for Alcohol and Drug Information, P. O. Box 2345, Rockville, Maryland 20854; or call 800 729-6686.

A public high-school teacher who not only advocates homeschooling but practices it for his three sons is the lively premise for *Why Homeschooling Makes Sense* by David Guterson (Harcourt Brace Jovanovich, $22.95.) Guterson, who teaches in Washington State, believes that homeschooling produces academic success and lessens peer pressure. The home-school movement now has more than 300,000 families, despite the enormous commitment of time and effort required of parents. The author covers legal obstacles and community resistance lying in wait for the unwary. While homeschooling still does not seem like a general antidote for the ills of American education, Guterson makes some telling points which will be of value to the educator concerned with making public schools work better.

And let us not forget C-Span, with a copyright policy which will be most refreshing to the weary educator being hassled over rights and payments, namely: C-Span programs are copyright-free for educational use.

Teachers may air the network live, record programs at school or home, assign students to watch programs, or create videotapes for use in the classroom.

And get this: *Tapes of programming may be kept indefinitely!*

If you don't know C-Span, correct that now. Write C-Span, Department of Educational Services, 400 North Capitol Street, N.W., Washington, D.C., 20001; or call 202 737-3220, or 800 523-7586.

Warning: If you have an addictive personality, C-Span can become become habit-forming.

"At the root of such attempts [at an education system that guarantees a certain outcome] is the notion that education has a mission to perfect human nature which usually means trying to make the instructed resemble the instructors. It's this very notion that builds in pedagogical failure: the relentless effort to oversee what and how people learn, thus destroying learning itself."

- Clarke Brown, novelist and teacher of English at California State University at Chico.

THE STATES CONSORTIUM FOR IMPROVING SOFTWARE SELECTION
SCISS
TESS
THE EDUCATIONAL SOFTWARE SELECTOR
UPDATE

Texas Sets Up "Preview Centers" to Help Promote Education Technology and TESS

The Texas State Education Agency isn't just talking technology for its 6,300 schools, it's backing it up with sufficient funds to make certain that educators get the word.

In addition to regular statewide support, Texas is providing an additional technology allotment of $30 per student, the money to be used by the schools to acquire computers and educational software.

To make certain that the schools have the proper guidance, a portion of the state technology allotment is to be given to each of the more than twenty Regional Education Service Centers to set up "Preview Centers" and personnel to staff the facilities.

The Preview Centers will provide educators with orientation on both hardware and software and access to state-of-the-art technology for demonstrating and previewing applications consistent with the Texas Long-Range Plan for Technology.

In addition, each ESC will have individuals with primary responsibility for implementing the distribution and use of TESS. ESC staff will provide the following services to Texas public schools:

- technical assistance for TESS and *The Latest and Best of TESS*;
- information on updates and maintenance;
- training in utilization of TESS and *The Latest and Best of TESS*;
- searches of TESS and *The Latest and Best of TESS* upon request.

The Texas Education Agency began the roll-out of TESS at the end of the 1991-92 school year through the Office for Technology. The Education Service Centers worked throughout the summer training teachers in the use of TESS and various other elements of the Texas Long-Range Plan for Technology. The Preview Centers are expected to expedite the process and appreciably shorten the learning curve.

ESC Managers Plan TESS Promotion

The technology contacts for twenty Texas Regional Education Service Centers attended a meeting on October 13-14th with the staff of the Texas Education Agency's Technology Services to finalize plans for the efficient distribution of technology services to the state's public schools.

High on the list was how to promote TESS throughout the state and make it easily available to educators in all 6,300 schools. Those attending shared experiences and laid plans for cooperative efforts to speed up the acceptance and use of TESS at the classroom level.

Three ESC technology contacts were recognized for their contributions to the TESS project: David Altus from ESC Region XIX (El Paso), for an excellent job as the TESS duplicator/distributor for the state; and Randy Purdy and Thom "Device" Driver from ESC Region II (Corpus Christi) for assisting with the electronic helpline.

Two other ESC contacts were awarded costly TESS/*EPIEgram* T-shirts for their contributions: Jon Pomroy from ESC Region X (Richardson) for training the most educators in the use of TESS, and Nancy Little from ESC Region XII (Waco) for promoting TESS and *EPIEgram* most energetically.

Plans were also discussed for a video to be produced for showing on PBS channels in other states which are members of the States Consortium for Improving Software Selection (SCISS), as well as states which are interested in joining.

And the Family Keeps on Growing

The 1992-93 school year kicks off with a great start for the States Consortium for Improving Software Selection.

The State of Tennessee, which officially joined the Consortium in July, has initiated steps for distribution and use of the TESS database to educators throughout the state. Tennessee becomes the sixth member of the Consortium, joining a list of states that currently also includes Michigan, New York, Georgia, Texas, and Indiana.

In October, the Chicago Public Schools became the first large urban school district to join the States Consortium, thanks to a grant from the John D. and Catherine T. MacArthur Foundation. Not a state, but a large urban district encompassing many schools, it is the first education agency to qualify as a Participating Member of the Consortium, with license for the use of TESS restricted to Chicago-area schools.

The strategy of the Chicago Schools for implementing the TESS plan throughout the district is unique in that it involves district high-school students. The Jones Metropolitan High School of Business and Commerce is a student-training enterprise which will serve as the TESS distribution center. Students at Jones Metropolitan will be trained to duplicate and package the database for distribution and to prepare documentation materials. ❑

Software and Technology

White Paper Targets Software Accessibility for Handicapped Users

The Information Technology Foundation this week released a white paper aimed at making computer software more accessible to people with disabilities.

Developed under a three-year grant to the Trace Center at the University of Wisconsin, "Making Software More Accessible for People with Disabilities" identifies the design considerations software developers need in order to understand and accommodate the special needs of physically disabled users. The study offers six basic approaches to making software more accessible.

Foundation Director James Geletka said the white paper will help the IT industry make more usable products and servicess. "That's a win-win situation for everyone," Geletka said. "With fewer barriers built into a software program, the disabled end user can gain proficiency and, as a result, build a more fulfilling career. IT companies can use the document to better understand how to comply with federal and state accessibility requirements. They can view more accessible software as a strategy for expanding the marketplace. And, perhaps more important, they can view adoption of these design considerations as the right thing to do."

A single copy of the 74-page white paper is available to the public at no charge. Telephone 703 284-5333.

WordStar Unveils the Works for Writing

WordStar International of Novato, California, has come out with The Works for Writing, a bundle of seven of the company's DOS programs, including a word processor, five writing tools, and a paint program for a list price (which of course means nothing anymore) of $495. Leading the bundle is the venerable word-processor WordStar, followed by the American Heritage Dictionary, Correct Grammar, Correct Writing, Correct Letters and Correct Quotes; and rounding out this somewhat obsessional bundle is ZSoft's PC Paintbrush IV Plus, a tool that lets users scan, edit, enhance, and create images.

From the Learning Can Be Fun Company

While anathema to the ruler-on-knuckles school of instruction, programs such as The Learning Company's new "Time Riders in American History" are probably the best way to inject learning into a generation capable of spending mindless hours at Nintendo and similar dead-end fruits of technology.

The plot goes something like this: Dr. Dread (we still think equating scientific intelligence with power-mad "doctors" is anti-intellectual) is determined to change world history. Only the Time Riders, of which the player is conveniently in charge, can foil his dastardly disinformation. The Time Rider has five high-tech tools to keep history accurate, including the Time Riders droid, KAT (Knowledge Access Terminal), which can be sent back through the holographic TimeTube to conduct interviews with real people who can tell what actually happened.

Are you still with this? Dr. Dread's minions don't give up easily, but with more than 2,300 clues about 145 historical events and 114 famous people, the player, age 10 and up, has plenty of ammunition. Value? Well, we can't help but feel young folks are better off with the likes of Ben Franklin and George Washington than with the Mario Brothers.

Ages 10 to adult. IBM and compatibles, DOS 3.0 or greater. Color monitor, hard disk, 640K, Soundblaster. $59.95 list.

For Mac Lovers Only

One of the oddities of the electronic age is that you still get your best information about your computer from print. And curmudgeons might ask why it is, if the Mac is so easy, that the how-to books for it reach the size of dictionaries. However, if you want to get more from your Macintosh, consider the following tomes:

☛ The 700-page *Dvorak's Inside Track to the Mac*, by John C. Dvorak, covers just about everything and includes a disk of shareware and freeware chosen by the Berkeley Macintosh Users Group. Dvorak Osborn McGraw-Hill, $39.95.

☛ The 900-page *Everything You Wanted to Know About the Mac. And Some things You Didn't Know You Wanted to Know*. A collection of 29 essays by various authors, edited by Larry Hanson. From Hayden, a division of Prentice Hall Computer Publishing, $29.95.

☛ Also from Hayden, a series of book plus disk releases: *Cool Mac Sounds* by Craig O'Donnell tells how to take advantage of the Mac's audio potential and includes a disk of sounds, some of which are freeware, some shareware (nominal fee); *Cool Mac Animation* by Clink Hicks; and *Cool Mac Quicktime* by Steve Sanz. Each *Cool* book, including disk, a modest $19.95.

Messless Frog Dissection

Operation Frog, from Scholastic Software, removes controversy about frog dissection in school labs; and no more formaldehyde either. The computerized frog can be taken apart and put together again and again; both dissections and reconstructions can be saved to disk or printed out, and text and graphics can be exported into word-processing or paint programs. A color monitor is advised, and teaching aids are part of the package: diagrams, two films, and more. $124.95 for the Mac; $89.95 for DOS; $79.95 for the Apple II. Available from Scholastic dealers or Inquiry Department, Scholastic Software, P. O. Box 7502, Jefferson City, Missouri 65102; telephone 800 541-5513.

Virtues of Electronic Books

Expanded Books (The Voyager Company) has a dozen electronic books on the market and intends to publish at least 40 more in the year ahead. Among the virtures of electronic books: the reader can carry ten books as easily as one; there is an automatic bookmark when you close the book; a search function will track down minor characters that get lost for several chapters; and they change type size if you've misplaced your glasses. You can read without a light in bed without bothering your bedmate; and when you fall asleep, the book shuts itself off. And, of course, the publisher can add sound and graphics at will. Oh, yes, it also saves trees.

The Learners in the Dell

In an effort to simplify buying decisions, Jostens Learning Corporation and Dell Computer have joined forces to provide educators with DOS computers designed specifically for educational use.

Based on either 386 or 486 chips, the Jostens computers will be able to handle up to 64 student stations from a single file server and will be able to run all Jostens products designed for DOS compatibles.

Rising Sony

Sony, ever on the prowl for another Walkman, has introduced the first portable, self-contained, Multimedia CD-ROM Player. The unit is compact (2 x 7 x 6 inches) and light (2 pounds). It has audio jacks for headphones or speakers, and a serial port for outputting to a printer or even a modem, and works with compatible PCs. Industry appears to be buying the concept: more than 60 multimedia software titles are in the works, 50 of them from Compton's NewMedia. Titles will include dictionaries, encyclopedia, language courses, travel guides, and medical reference sources (e.g., Home Remedies).

Big Blue Means Business

The world's largest computer company has been struggling with world-class problems, such as 40,000 employees let go; a stock price which drifts downward only when it isn't plunging; hordes of high-powered and low-priced competitors; and a corporate reorganizing for tough times ahead, including the complete splitting off of its PC division. There has been some fumbling and stumbling in the redeployment—and the educational division, EduQuest, seems particularly slow getting out of the chocks—, but there's plenty of life in the old girl yet – as evidenced by the this fall's announcement of a completely new family of IBM Personal System/1 computers: 21 new models in all, including three notebook computers. The computers come with everything to go; the desktop models are Novell certified, and are preloaded with DOS 5.0 and Windows 3.1; software for Prodigy, Promenade, and WinFax is also included.

Tandy is Dandy

If you're looking for one-stop shopping, Tandy may be part of your future with its new Computer City concept, a superstore with more than 5,000 items that will offer IBM, Apple, AST, Compaq, and Tandy, as well as other name-brand computers, printers, software, accessories, and office equipment.

But the real vision of the future is Incredible Universe, stores with 160,000 square feet (compared to 25,000 in Computer City) and a $9-million inventory. Included will be interactive displays, a recycling center, a supervised children's play area, and services such as training, repair, installation, and delivery.

Kidsnet Kismet

If you didn't know about *Kidsnet* before, perhaps it was your destiny to read about it here. A computerized clearinghouse for children's television and radio, the monthly bulletin is a must for anyone interested in sifting the wheat from the chaff. Includes specific copyright information (e.g., all ABC programming is standard, two-use rights; *CNN Newsroom* may be taped off-air and kept in perpetuity). Don't, however, confuse non-profit with free; the voluminous monthly information will cost $155 to $585 depending on how you want it delivered, by post or electronically, and whether you are non- or for-profit. Write Kidsnet, 6856 Eastern Avenue, N.W., Suite 208, Washington, D.C. 20012, or call 202 291-140.

Let ERIC Be ERIC

ERIC has a new information number: 800 LET-ERIC. If you find words instead of numbers confusing (and slightly irritating as we do) try 800 538-3742.

Evidently ERIC/IR's monograph, *Libraries for the National Education Goals* is a best seller, and only $10. ERIC also has oodles of freebies, how-to's, advice for parents to help children learn, what to do with a gifted child; publications on computer software copyright, educational technology, automation for school library media, the impact of microcomputer-based instruction on teaching and learning, CD-ROM in the library, promotion of reading, television and children.

You name a subject and ERIC/IR will not only have something on it, it will have a lot of somethings. ❑

Deutsche Presse Agentur reports that a Bavarian inventor named Bruno Gruber has patented an "agent dispenser," a small device which attaches to a television or radio and releases appropriate odors. "The smallest amounts are enough to give viewers the right effect," enthused the passionate Gruber. "For instance, a perfume smell for a love scene." He said that Japanese companies were already interested in the idea. Meanwhile we can only hope that wind of this never reaches the people listed in TESS who develop those wood-pulping and paper-making simulations.

The Latest of TESS
Assorted Educational Programs from Personal to Stress

PERSONAL SCIENCE LABORATORY STARTER PAK
IBM
Science
Grades 6-12
A microcomputer-based laboratory. Helps students build skills in science and scientific method. Students explore, analyze, learn through participation. Curriculum areas include temperature, pH, motion, and light. Requires temperature, light, and pH modules, temperature probe, cables. Copy protected. Network version available.
IBM PC and compatibles, $357.

PFS: GRAPH
Computers: Computer Literacy; Applications
Grades 7-12
Scholastic
Enables students to display data they have compiled using Scholastic pfs: plan or Scholastic pfs: file. They can select bar, line, or pie charts; change from one format to another with a few keystrokes; and make comparisons by using various charts simultaneously.
Apple II+/IIe/IIc/IIgs, $79.95.

PFS: PLAN
Scholastic
Computers: Computer Literacy; Applications; Business; Accounting/ Bookkeeping; Mathematics; Consumer Math
Grades 7-12
Analyze figures, develop budgets, create balance sheets, and design a variety of "real-life" financial models. Analyze output from data in Scholastic pfs: file. Features single-keystroke entry of headings and column widths that adjust automatically. A series of lessons leads students through sample applications of program.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $79.95.

PHONICS PRIME TIME: FINAL CONSONANTS
MECC (Minnesota Educational Computing Corporation)
Reading: Reading Readiness
Grades K-2
A dachshund and monkey help students get the last word on final consonants while getting some additional review of initial consonants. When kids recognize the final consonants of everyday words, they are rewarded. Not recommended for use with the Apple IIc Plus.
Apple II+/IIe/IIc/IIgs, $59.

PHONICS PRIME TIME: INITIAL CONSONANTS
MECC (Minnesota Educational Computing Corporation)
Reading: Reading Readiness
Grades K-1
Young children master initial-consonant phonics skills with the aid of frogs and puppeteer Waldo Grizzy. When students correctly match consonants with illustrations that represent words starting with those consonants, they are rewarded. Not recommended for use with Apple IIc Plus.
Apple II+/IIe/IIc/IIgs, $59.

THE PHYSICAL SCIENCE LABORATORY
Focus Media
Science: Physical Science
Grades 5-10
A series of physical-science simulations designed to help students better understand science concepts. Covers: finding elapsed time, measuring length and width, finding area, using a map to find distance, finding seasonal temperatures, finding refrigerator temperatures, and pendulum motion. Requires EGA graphics
Apple IIgs, IBM PC and compatibles, $259.

PHYSICS EXPLORER: AC/DC CIRCUITS
Wings of Learning
Science: Physics; Electricity and Magnetism; Industrial Arts; Electronics and Electricity
Grades 9-College
Students can design and operate their own electrical circuits and analyze the results. Circuit elements include resistors, capacitors, inductors, switches, and AC/DC voltage sources. "Light bulbs" are also included for qualitative studies. Up to three circuit branches can be built with up to four electronic elements each. Part of the Physics Explorer series. Network version available.
Apple Macintosh 512E, Plus, SE, II, $125.

PHYSICS EXPLORER: ONE BODY
Wings of Learning
Science: Physics; Electricity and Magnetism
Grades 10-College
Explores the motion of one body in a wide range of inertial systems. Student can give body an electrical charge, add a magnetic field, an electric field, gravity, and frictional forces. Can be used over and over again throughout the year to explore many topics in mechanics and electromagnetism. Part
of the Physics Explorer series. Network version available.
Apple Macintosh 512E, Plus, SE, II, $125.

PHYSICS EXPLORER: GRAVITY
Wings of Learning
Science: Physics; Motion, Force, and Energy
Grades 9-College
Lets students explore the motion of a body under the influence of a centrally gravitating planet. They'll qualitatively and quantitatively observe Kepler's Laws and apply them to the sun, earth, planets, and satellites. Part of the Physics Explorer series. Network version available.
Apple Macintosh 512E, Plus, SE, II, $125.

PHYSICS EXPLORER: TWO BODIES
Wings of Learning
Science: Physics; Motion, Force, and Energy
Grades 9-College
Students explore conservation of energy and momentum in two-body interactions. Add frictional forces, control gravity, and modify elasticity. Study Galilean relativity by doing experiments in moving or accelerating laboratories. Get a different view of things, change the frame of reference at any time during experiment. Part of Physics Explorer series. Network version available.
Apple Macintosh 512E, Plus, SE, II, $125.

PICTURE PARADE
Hartley Courseware
Early Learning and Preschool
Grades K-2
Helps young students conceptualize the time order of events. Lets students manipulate on-screen pictures to form logical sequences. Contains 48 sets of 2-, 3-, 4-, and 6-part stories. Students number the pictures, see them instantly rearranged in the order selected, check their own work, and get feedback. Requires Unicorn Board adaptive card. Keeps records.
Apple II+/IIe/IIc/IIgs, $39.95.

PLAYING WITH SCIENCE: MOTION
Sunburst Communications
Science: Physics; Motion, Force, and Energy
Grades 4-9
As objects roll or bounce in front of the motion detector, their position is displayed graphically on screen. Walk slowly toward detector and line on graph goes down; walk away from it and line goes up. Students will discover the concrete relationship between movement and lines on a position vs. time graph. Requires motion detector (included).
Apple II/II+/IIe/IIc, $165.

THE PLAYROOM
Broderbund Software
Early Learning and Preschool
Grades preschool-2
A program of games and activities built around the theme of a child's playroom. Child can select any object in the room and something fun will happen. Teaches counting, simple addition and subtraction, letter recognition, beginning phonics, spelling, telling time, art and creativity, beginning keyboarding, and more.
IBM PC and compatibles, $44.95; Apple II+/IIe/IIc/IIgs, $39.95; Apple Macintosh 512E, Plus, SE, II, $49.95.

POINT OF VIEW: SCHOLASTIC HISTORY PROCESSOR
Scholastic
Social Sciences: History; United States History
Grades 8-12
An authoring and research program which combines a large amount of historical information with a set of powerful tools to explore, interpret, and present history. Chronicles more than 2,000 historical milestones arranged in 24 topical lists. Network version available.
Macintosh Plushard disk, videodisc player: Overview of U.S. History, $199.95; Civil War and Reconstruction, $149.95.

POPULATION ECOLOGY
Wings of Learning
Science: Ecology and Environment
Grades 9-College
Students manipulate variables such as a population's type and size, its fertility, its relationship with other populations, and its adaptability to various habitats. Allows students to create niches and investigate the influence of ecological catastrophies. Students enhance their understanding of basic concepts which underlie today's environmental issues. Network version available.
Apple Macintosh 512E, Plus, SE, II, $125.

POSITIVELY REWARDING
Tom Snyder Productions
Home Economics: Personal Development; Guidance Counseling
Grades 1-12
Complete program for reinforcing positive behavior. Teachers can tailor a behavioral plan for the whole class or for individual students. Behaviors can be chosen from a list on the Teacher Disk or created by the teacher to suit a particular student and his or her problem.
Apple II+/IIe/IIc/IIgs, $59.95.

POW! ZAP! KER-PLUNK! THE COMIC BOOK MAKER!
Queue
Comprehensive: Generalized Tool Programs; Publishing and Printing Tools; Graphics Generators; English and Language Arts; Basic Skills; Composition and Writing
Grades 4-8
Students design their own comic books and share them with the class. Users choose from a variety of panelled backgrounds and hundreds of pieces of clip art to begin their design. The new sequential printout option has a variety of page layouts.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $49.95.

PRESCHOOL PLANNER
Exceptional Innovations
Early Learning and Preschool
Grades Presch-K
Designed for use by teachers, aides, and child-care workers. Analyzes typical classroom routines such as play, teacher-directed instruction, transition between lessons, maintenance tasks, and instructional activities; provides practical suggestions how to adapt instruction to meet the needs of young children with learning difficulties.
IBM PC and compatibles, Apple II+/IIe/IIc and compatibles, $50.50.

PRIMARY EDITOR PLUS
IBM
Comprehensive: Generalized Tool Programs; Multi-Function Tools
Grades K-6
Flexible entry-level word processor offers a spell checker, 40- to 80-column modes, eight-color selection, paragraph reflow, and mark, move, and copy functions. Includes picture editor, banner maker, online tutorials, text-to-speech voice capability, and various teacher management options. Copy protected. Network version available.
IBM PC and compatibles, $95.

PRINCIPLES OF TECHNOLOGY
Shopware Educational Systems
Science: Technology Education; Industrial Arts
Grades 10-College
Designed to assist students in conceptual understanding of formulas. Covers force, work, rate, resistance, energy, power, force transformers, momentum, waves and vibrations, energy converters, transducers, radiation, light and optic systems, and time constants. Keeps records. Network version available.
Apple Macintosh 512E, Plus, SE, II/II+/IIe/IIc and compatibles, IBM PC and compatibles, $99.50.

THE PRINT SHOP IIgs
Broderbund Software
Comprehensive: Generalized Tool Programs; Graphics Generators
Grades K-12
Students can print out creations from greeting cards to banners - in up to eight colors! Over 120 unique, multi-color graphics utilize the color and screen resolution of the IIgs. Full panels, borders, backgrounds, and a powerful graphics editor are all included.
Apple II+/IIe/IIc/IIgs, $69.95.

THE PRINT SHOP COMPANION IIgs
Broderbund Software
Comprehensive: Generalized Tool Programs; Graphics Generators
Grades K-12
Students draw on Quick Page's graphic capabilities to create a variety of items. Includes full-featured Font, Border, Graphic and Panel Editors with a complete array of tools for creating custom Print Shop Design elements, plus an Import option, a Cataloger utility, and Creature Maker and Tile Magic for creating custom graphics. Does not require *Print Shop IIgs*.
Apple II+/IIe/IIc/IIgs, $69.95.

PRINT YOUR OWN - CALENDAR
Hartley Courseware
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Grades 4-College
User can create multiple databases of calendars by the month and by the year. Can print a calendar from scratch or select any data from user calendar databases. Puts any overflow at the bottom of the sheet, or user can edit each day. Copy protected. Network version available.
Apple II+/IIe/IIc/IIgs, $49.95.

PROTECTING THE UNBORN CHILD: ALCOHOL AND PREGNANCY
Focus Media
Health: Health Care and Hygiene
Grades 7-College
Examines Fetal Alcohol Syndrome, its prevention, blood alcohol concentration, the maternal/fetal exchange, and critical periods of exposure to alcohol during pregnancy. Students input personal data and then watch the impact of alcohol on the fetus. Teaches that the mother's lifestyle greatly affects the unborn child.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $99.

PUPPETMAKER
Sunburst Communications
Comprehensive: Games, General-Purpose; Fine Arts; Art
Grades K-6
Students make their own puppets. They create dozens of characters by simply pressing a key to select the desired hairdo, mouth, eyes, and clothing for their special puppet. A variety of puppets is available, from finger puppets and animal marionettes to paper-bag puppets. Copy protected.
Apple II+/IIe/IIc and compatibles, $75.

THE PUZZLE STORYBOOK
First Byte
Logic and Problem Solving: Early Learning and Preschool; English and Language Arts; Basic Skills; Composition and Writing
Grades preschool-3
Combining language arts activities with visual discrimination projects, Zug the megasaurus leads children through a graphic playground. Children build graphic scenes through a library of graphic icons and change the scene into two types of puzzles to solve. Children can also choose to complete a picture and write a story to accompany the scene.
IBM PC and compatibles, Apple Macintosh 512E, Plus, SE, II, Commodore Amiga, $39.95.

PYWARE CHARTING AID
PyGraphics
Comprehensive: Class Management Aids; Miscellaneous Aids; Comprehensive; Generalized Tool Programs; Graphics Generators
Grades 9-College
Includes full animation, curves, mirror, line drawings, compound maneuvers, and use of more than 64 symbols. User may view from all sides of field, print and edit charts at any count in show. Copy protected.
Apple Macintosh 512E, Plus, SE, II/II+/IIe/IIc and compatibles, IBM PC and compatibles, $870.

QUOTEMASTER PLUS
PennComp Software
Comprehensive: Generalized Tool Programs; Database Managers
Grades 5-College
An information-retrieval system which includes more than 3,000 quotations in its database. Cross-search functions allow pinpointing passages by author, topic, word, and era. Selected quotations can be saved to disk for later retrieval or copied directly into another program. Additional quotebases are available.
Apple Macintosh 512E, Plus, SE, II, $89.

RAILROAD SNOOP
Sunburst Communications
English and Language Arts: Basic Skills; Composition and Writing
Grades 5-7
With this writing program designed for use with Magic Slate II, students become authors of intrigue. They discover strange happenings in a railroad yard, and must place themselves in the position of the railroad snoop, making entries into a detective's journal. Copy protected. Network version available.
Apple II+/IIe/IIc and compatibles, $59.

READING A RULER - METRIC
Shopware Educational Systems
Science: Scientific Methods and Measurement; Industrial Arts; Drafting and Mechanical Drawing; Mathematics; Basic Skills; Measurement and Metric
Grades 6-10
Covers introduction to the metric system in measurement, the different types of metric measurements used with rulers, and drill and practice on reading a metric ruler. Keeps records. Network version available.
Apple II+/IIe/IIc and compatibles, $89.95.

RECORD BREAKER! 1/2/3
J. Klein/Grade Busters
Comprehensive: Class Management Aids; Grades and Recordkeeping; Administrative Software; Student Records; Attendance
Grades K-College
A gradebook and attendance program. Has 10 categories, 160 grades, 80 students, 215 attendance dates, 999 points, drop and undrop grades, undo, expert mode, save Y/N selections, 3-digit grades (A++), and more. Copy protected. Network version available.
IBM PC and compatibles, $99.95.

THE RESUME WRITING ACTIVITY KIT
J. Weston Walch, Publisher
Guidance: Career Information
Grades 9-12
Introduces resume components and functions, shows how to tailor the resume to the job, and provides job-search simulations. Includes 28 reproducible worksheets.
Apple II+/IIe/IIc and compatibles, $52.95.

RUNNING YOUR OWN BUSINESS: PRINCIPLES OF ACCOUNTING I
Shopware Educational Systems
Business: Accounting/Bookkeeping
Grades 9-College
Includes introduction to accounting, accounts and transactions, and transaction and journals. Keeps records. Network version available.
Apple II+/IIe/IIc and compatibles, $89.95.

SAFETY WITH ELECTRICITY AND ELECTRONICS
Shopware Educational Systems
Industrial Arts: Shop Safety; Industrial Arts; Electronics and Electricity
Grades 7-College
Teaches the basics of safety when working with electricity. Includes safety with electricity, safety with electronics, first aid, and fire safety. Keeps records. Network version available.
Apple II+/IIe/IIc and compatibles, $109.95.

SCHOLASTIC A.I.
Scholastic
Computers: Computer Science; Logic and Problem Solving
Grades 6-12
Takes students on a journey into the "mind" of the computer to see how it learns. Students begin by designing a game to play with the computer. A series of problem-solving modules guides students through the "thought process" the computer uses to develop its decision-making capabilities. Network version available.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $79.95; Apple Macintosh 512E, Plus, SE, II $89.95.

SCIENCE PROJECT MYSTERIES
Focus Media
English and Language Arts: Basic Skills; Composition and Writing; Reading; Comprehension Skills
Grades 3-4
Children join Lucas and Sandy at the Science Fair and learn all about the mysteries thay have created with their science projects. Students can write stories about their own projects and their own mysteries, as they expand their universe of language. Contains teacher management.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $55.

SEARCH AND SOLVE
K-12 MicroMedia Publishing
Comprehensive: Generalized Tool Programs
Grades 4-8
Teaches students to use reference materials available at home. Students answer questions and picture forms on screen. If the student cannot answer a question, help is given in the form of suggesting reference books. Network version available.
Apple II+/IIe/IIc/IIgs, $29.95.

THE SECRET ISLAND OF DR. QUANDARY
MECC (Minnesota Educational Computing Corporation)
Logic and Problem Solving
Grades 10-College
A variety of problem-solving puzzles and challenges in a fantasy island scenario. Students make their way across the island and escape back to everyday life by collecting tools, solving puzzles, and overcoming challenges. Can be used with Ad Lib or Ad Lib-compatible sound boards.
IBM PC and compatibles.

SIM CITY
Maxis/Broderbund
Social Sciences: Civics and Government
Grades 7-College
Allows students to design and build their own city as they play the part of the mayor or the city planner. They do this amid natural disasters, citizen uprisings, tax problems, and a large variety of the day-to-day occurrences that happen in any city. Keeps records.
IBM PC and compatibles, Apple Macintosh 512E, Plus, SE, II, Commodore Amiga, $49.95; Commodore 64/128, $29.95.

SIM EARTH
Maxis/Broderbund
Science: Ecology and Environment; Earth Science
Grades 9-12
Based on James Lovelock's Gaia hypothesis, this simulation lets students take charge of entire planet to see how various earth sciences are interrelated. SimEarth covers four time scales: Geologic, Evolution or Biologic, Civilization, and
Technologic. Students can load in a particular scenario; for instance, Earth during Industrial Revolution.
Apple Macintosh 512E, Plus, SE, II, IBM PC and compatibles, $99.95.

SLIDE SHOP
Comprehensive: Generalized Tool Programs; Publishing and Printing Tools
Grades 4-12
Scholastic
Enables teachers and students to create interactive computer slide presentations; self-booting slide shows will run on any compatible computer. Screens can be copied to overhead transparencies and presentations can be transferred from disk to videotape. Offers more than 40 special effects transitions. Includes "Guide to Effective Presentations." Network version available.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $79.95.

SMOKING
Learning Multi-Systems
Health: Drugs, Alcohol, and Tobacco; Guidance Counseling
Grades 6-12
Teens clarify feelings and beliefs about smoking, learn more about the effects of smoking, and find out how to quit, how to support others who want to quit, and how to say no to smoking. Part of the Body Awareness Resource Network (BARN).
Apple II+/IIe/IIc/IIgs, $120.

SOCIAL STUDIES TOOL KIT: OUR WORLD
Tom Snyder Productions
Social Sciences: History; Current Events; Social Sciences; Geography
Grades 5-12
Includes 80 separate data files covering 151 nations of the world for analyzing global issues, with ability to highlight different areas of the world. Current with data up to 1991. Part of the Social Studies Tool Kit series.
Apple II+/IIe/IIc/IIgs, $99.95.

SOCIAL STUDIES TOOL KIT: HELLO USA
Tom Snyder Productions
Social Sciences: History; Geography; Sociology
Grades 5-12
Includes all the features of Our Nation as well as pull-down menus and innovative map graphs. Lets students view information and manipulate it. Part of the Social Studies Tool Kit series. Network version available.
IBM PC and compatibles, $99.95.

SOCIAL STUDIES TOOL KIT: OUR NATION
Tom Snyder Productions
Social Sciences: Geography; Sociology; History; Current Events
Grades 5-12
Students explore the country graphically, analyzing information, calculating correlations, and mapping relationships. 280 separate data files cover everything from population and climate to health and economics for each of the fifty states. Current with data up to 1991. Part of the Social Studies Tool Kit series.
Apple II+/IIe/IIc/IIgs, $99.95.

SOCIAL STUDIES TOOL KIT: HELLO WORLD
Tom Snyder Productions
Social Sciences: History; Current Events; Social Sciences; Geography
Grades 5-12
Includes all the features of Our World by Tom Snyder Productions as well as pull-down menu and a map graph feature. Up to date, giving students an introduction to the new world order. Part of the Social Studies Tool Kit series. Network version available.
IBM PC and compatibles, $99.95.

SOLVE IT!
Sunburst Communications
Logic and Problem Solving: Comprehensive; Games, General-Purpose
Grades 4-12
Students Solve It! by using and/or logical operators to unravel mysteries involving spies, caves, sunken treasure, haunted house, and more. Copy protected. Network version available.
Apple II+/IIe/IIc and compatibles, $75.

SOLVE IT! AMERICAN HISTORY MYSTERIES 1492 - 1865
Sunburst Communications
Logic and Problem Solving: Social Sciences; History; United States History
Grades 4-12
Based on Solve It! by Sunburst. Students play the role of detectives, choosing a mystery and reading the case history. They then identify appropriate key words in order to retrieve clues from the database. Copy protected. Network version available.
Apple II+/IIe/IIc and compatibles, $75.

SPACE STATION FREEDOM
MECC (Minnesota Educational Computing Corporation)
Reading: Comprehension Skills
Grades 4-5
Focuses on the processes of reading, reading comprehension, fact-finding, problem-solving, and other language arts-based skills. Keeps records. Copy protected.
Apple II+/IIe/IIc/IIgs.

SPELL IT PLUS - FRENCH
Davidson and Associates
Foreign Language: French
Grades 4-12
An animated arcade-style game. Reinforces spelling rules and spelling patterns. Can be personalized by adding own word lists in English, French, German, or Spanish. Keeps records. Network version available.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $49.95.

SPELL IT PLUS - GERMAN
Davidson and Associates
Foreign Language: German
Grades 4-12
An animated arcade-style game. Reinforces spelling rules and spelling patterns. Can be personalized by adding own word lists in English, French, German, or Spanish. Keeps records. Network version available.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $49.95.

SPELL IT PLUS - SPANISH
Davidson and Associates
Foreign Language: Spanish
Grades 4-12
An animated arcade-style game. Reinforces spelling rules and spelling patterns. Can be personalized by adding own word lists in English, French, German, or Spanish. Keeps records. Network version available.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $49.95.

SPELUNX AND THE CAVES OF MR. SEUDO
Broderbund Software
Comprehensive: Generalized Tool Programs
Grades K-4
Many of the activities center on real-world themes such as ecology, astronomy, biology, reading, music, and art.
Apple Macintosh 512E, Plus, SE, II, $39.95.

SPREADSHEETS FOR GENERAL BUSINESS CLASSES
J. Weston Walch, Publisher
Computers: Computer Literacy; Applications; Business; Office Practice
Grades 9-12
Gives practical application problems in business, consumer issues, and economics. Provides practice activities using the AppleWorks spreadsheet. Requires Appleworks.
Apple II+/IIe/IIc and compatibles, $59.95.

STRESS MANAGEMENT
Learning Multi-Systems
Home Economics: Personal Development; Health; Health Care and Hygiene; Guidance Counseling
Grades 6-12
Definitions and examples show how stress can affect people. Through various techniques, teens examine stressors in their lives, receive instruction on managing stress, and learn why it is important to talk about problems with others. Part of the Body Awareness Resource Network (BARN).
Apple II+/IIe/IIc/IIgs, $120. ❑

Ye Freshest News and Advices

Dial Me a Story

Teachers or parents with a computer and one or more of the online services have instant access to an increasingly broad range of software for children. While CompuServe, America Online, Dialog, and Genie all offer features for children (as well as for adults), Prodigy appears to be making the big play for this market.

While Prodigy's computers are located in White Plains, New York, (not far from Armonk, home of IBM, a partner with Sears in Prodigy), customers in most larger cities can dial a local access number; out-of-towners dial the nearest city.

Besides educational games and resources ("Where in the World is Carmen Sandiego," "Nova," "Reading Magic Library" to name a few), Prodigy offers articles of general interest as well as the latest national and international news. It also has an electronic mail service which increasingly is used by schools as a simple, inexpensive way to coordinate projects with other schools.

For info: Prodigy Information Services, 800 776-3449.

Thirtysomething

A computerized literacy system, "Solutions," from Educational Activities, Inc., has been designated one of the top educational products of the year by *Curriculum Product News*.

"Solutions" integrates more than 30 of Educational Activities' highest-rated software programs into a system to improve skills in reading, language arts, writing, and math.

Available for free 30-day preview. 800 645-3739. (In New York, 516 223-4666.)

Potatoes (Couch) Have High Cholesterol

According to a recent study of a state-funded research and training project at Michigan State University, forty per cent of children in the 5-8 age group already show signs of at least one risk factor for heart disease: a) obesity; b) elevated blood pressure; c) high cholesterol.

The problem is the lack of exercise; the culprit, the report says, is the emphasis on team sports and winning. Inevitably, an elite emerges and many children are "disenfranchised;" unable to compete well, they avoid sports altogether. Further, the report notes, in most school sports, the student is in motion less than 25% of the time, an inefficient use of the time allotted.

Solution: Emphasize play, not winning; individual improvement, not superiority. Train coaches to be more like teachers, concerned with all the children and their development, not with building a winning team of an elite few.

When High Tech Needs Low Tech

Need a gift for a computer obsessive? Go low tech. Soft wrist rests ($15 in a store or make them yourself); a telephone headset, to prevent rigor mortis of the neck ($50); humidifiers, to cut down the chance of static electricity wreaking havoc with precious data; an air filter, to keep dust away; and an air pillow or foot rest can do wonders, as will a really good chair, and a table big enough to get the screen at least two feet away.

Hot Careers

Career advisers would do well to consider the list of hot careers compiled by the Rochester Institute of Technology. Their picks: information technology, environmental management, imaging science, microelectronic engineering, packaging science, telecommunications, biotechnology, travel management, allied health sciences, electronic still photography, biomedical photographic communications ...and *food marketing and distribution*. Computer geeks eat a lot of pizza!

While the choices may reflect a certain bias for local industry (such as Kodak, Xerox, Bausch & Lomb), the Institute noted that the technology area is growing so rapidly it has become mandatory even for established professionals to continue to educate themselves, particularly in computer software.

"*Da, da*, but what channel is *Ghilligan's Island*?"

Russian citizens will soon be instructed in the principles of democracy through a joint effort of The Russian Federation, The Center for Democracy, and The Discovery Network. An agreement was announced recently by Russian Education Minister Edward Dneprov of a master plan to develop programming, primarily television, to help educate Russians in both theory and practice, including free-market economics, human rights, environmental concerns, as well as democratic principles.

Another DAK Bundle

DAK Industries has a new software offer: World Atlas and U.S. Atlas for $39.90 plus Chessmaster 3000 as a free bonus. The programs, for Windows or DOS, are published by Software Toolworks.

World Atlas is said to feature VGA color maps of more than 200 countries—perhaps they are including some on Neptune, because there aren't that many on Earth—, as well as 4,400 reference, political and topographical maps.

The obsessive Drew Kaplan, president of DAK Industries, was quoted in his own press release, apparently incoherent with enthusiasm: "Today Soviet tanks blasted the city of Sarajevo. With World Atlas you can instantly find Sarajevo in Bosnia-Hercegovina and discover its close proximity to Yugoslavia." But he goes on to make a good point: "Electronic maps are the only way to keep up with all the changes...The world moves fast and paper atlases can't keep up. I recently visited a large bookstore and not one atlas had up-to-date maps and facts on the 15 new Republics of the former USSR. World Atlas has this information and much more."

Call 800 325-0800 or write DAK Industries, 8200 Remmet Avenue, Canoga Park, California 91304. ❑

EDUCATION BABYLON

Universities Kill the Goose

To the cynical, the Federal Government is the ultimate layer of golden eggs – as well as other kinds. Now universities have been added to the long list of those who see Uncle Sam as an easy mark

Among those institutions which have ended up with (golden) egg on their face: Stanford, which spent research money on bed linens and a yacht and may owe the government as much as $232 million; Carnegie-Mellon, which charged a cruise down the Nile to Uncle Sam; and Syracuse University, which passed along an $11,000 bill for a St. Patrick's Day party.

Only the tip of the tip of the iceberg some say, noting that government expenditures on research with universities has grown from $500 million in 1961 to nearly $10 billion in 1991. One reason for academic dipping may be a formula which gives the university reimbursement for "indirect" costs on top of the research award, a loophole large enough to drive a...well...a yacht through.

Since universities do almost two thirds of all research, any disruption of the relationship will have serious consequences in the future. Sign of the times: A research organization working with the National Science Foundation on a rush job tells us that new guidelines are so strict that it has been waiting five months for a contract to be approved – and this for something which everyone involved has already agreed needs to be done as quickly as possible.

Computer Crimes

"Society prepares the crime," read the fortune cookie, "the criminal commits it." As the computer becomes more ubiquitous, computer crimes also are on the rise. The cost to Americans, according to the Justice Department, may be as high as $5 billion a year. Crimes range from the fraudulent use of telephone services, distribution of stolen credit-card numbers, embezzlement, software piracy, destruction of data with computer viruses, and entering private computer systems.

Along with teaching computer literacy, some experts believe schools should also teach computer ethics and aver that illegally copying a computer program priced at $295 is ethically the same as stealing $295 in cash. (Our courts, one suspects, treat the crimes differently.)

Diploma No Ticket

The U.S. Department of Labor's SCANS (Secretary's Commission on Achieving Necessary Skills) reports that more than half of all young people leave school without the skills needed for productive employment; and that since high schools aren't teaching skills needed for today's workplace, a high-school diploma is no longer a ticket to a decent job. Sample statistics for 20 years from 1969 to 1989:

Rise in percentage of men between 25 and 54 with 12 years of schooling who earn less than enough to support a family of four above the poverty line:

White	from 8% to 22%
Hispanic	from 16% to 36%
Black	from 20% to 42%

SCANS suggests that one reason jobs are shipped overseas is that American workers lack the skills needed in a modern manufacturing environment.

SCANS's recommendation: Since the world keeps changing and reinventing itself, schools must do the same.

Survey Reveals Americans Would Rather Be Brain-Dead than Wealthy

A survey of more than a thousand American adults found that a quarter would spurn an offer of a million dollars to give up gaping at television. Commissioned by *TV Guide* and carried out by Peter D. Hart Research Associates of D.C., the study further revealed that it would take *at least* that much dough to get 46% to give up their electronic drug.

The survey found that 63% often gawked at the big box while shoveling dinner into their gaping maws, including *more than three out of four* of the 18-to-24-year-olds. Remember too that these are confessions, not actual observations.

Of the respondents 29% *admitted* that they fall asleep with the set on, more than one in three *admitted* that they leave it on merely for background noise, 42% *admitted* that they switch it on whenever they enter a room; and 45% said it would be fine with them if the broadcast networks discontinued their national news programs. What the actual figures are, one does not care to surmise.

Is it possible to maintain a civilization under such conditions?

The American Way: Talk It to Death

No one seems able to solve our educational crisis but just about everyone knows its there. According to Paul De Hart Hurd, professor emeritus of science education at Stamford (writing in *Education Week*), in the past decade there have been more than 350 national reports by panels, commissions, and committees on the condition of education in America, all full of resounding calls for change.

"If the group is under 40 and I wish to make a historical reference—FDR and the New Deal, for example—, I make certain I tell the history first, otherwise they just won't know what I'm talking about."

– Gus Tyler, writer and consultant who lectures frequently on politics, the labor movement, and ethics.

"It used to be 'Don't trust anybody over 30;' now it's 'Don't ask anybody under 30.'"

- Martin P. Wattenburgy, political scientist at University of California in Irvine, commenting on the ignorance of young people about politics and government.

Publishing

New and Old

California Likes Britannica

An elementary science program by the Encyclopaedia Britannica Education Corporation has been recommended for adoption for grades 3 to 6 in California by a state curriculum and materials commission.

EBEC calls its product a "revolutionary marriage of videodisc technology and state-of-the-art, hands-on, process oriented science education." (Apparently, however, the program will not teach students when to hyphenate.)

The Britannica Science System integrates the videodisc-based Science Essentials program with the Full Option Science System, a program developed at the Lawrence Hall of Science at Berkeley, by author and professor Dr. Lawrence F. Lowery and a team of developers armed with a National Science Foundation grant.

EBEC says the Britannica Science System is unique in wedding technology to "hands-on" activities which encourage students to work in collaborative groups – something Ken Komoski likes.

Dr. Helen Quinn, a research physicist at the Stanford Linear Accelerator Center: "It is my observation when working with teachers in the Oakland schools who have been using the FOSS materials that those teachers were excited by using FOSS and that they understand the importance of a hands-on approach to learning science."

K-2 materials are slated for 1993, stuff for grades 7-8 later. Other states considering the system are Indiana, New Mexico, and West Virginia. Call 800 554-9862 for a sales pitch.

Print Classics to Go Electronic.

For 75 years the Modern Library imprint has provided low-cost hardcover versions of the classics; now it is issuing 25 titles for the "Expanded Book" series to be read on the Apple Powerbook Computer, as well as in print. $12.50 to $22.50 for print; $19.95 to $24.95 for the electronic version.

Macintosh/Random House Bundle Encyclopedia.

The only electronic encyclopedia that does not require CD-ROM can now be obtained bundled with Macintosh computers available through certain resellers. Apple will transfer the Random House Encyclopedia to the hard disk before shipping. For more info: Mike Weiner at Microlytics, Pittsford, New York, telephone 716 248-9150, fax 716 248-3868; or Connie Connors, Connors Communications, New York, New York, telephone 212 431-9300, fax 212 431-1146.

Instant Textbooks

As the world turns digital, new technologies will be coming before educators have begun to utilize the ones already available. Example: the "custom" textbook. McGraw-Hill is already testing "Primus," a system for providing textbooks to be fitted to the curriculum at the touch of a button.

"On-demand" publishing, as some call it, is already being tested at the University of California, San Diego, using printing software and hardware developed with Eastman Kodak.

The benefits are many: instructors can choose exactly the material they wish to cover in class; textbooks can be updated easily; publishers no longer have to invest heavily in inventory, nor incur the considerable costs of printing and shipping and the inevitable remainders; bookstores avoid the cost of inventory and overstocking; prices are expected to go down, particularly since students may need only one customized book which will contain the information currently scattered through three or four textbooks.

First Step for Computophobes

Confucius say, "Longest journey begin with single step." If learning to teach using computers seems a daunting journey, this might be an acceptable first step, a book with the rah-rah name of *Teaching with Computers: Yes, You Can!* Originally designed for use in undergraduate computer education courses for K-12 preservice teachers, it covers the basic skills needed for using computers in the classroom. $19.95 from Kendall-Hunt Publishing Co.

Litigation U.

Two hundred years after the signing of the Constitution, individual rights are still being defined, including those of students. A short book, *Student Rights Under the Constitution: Selected Federal Decisions Affecting the Public School Community*, addresses these and many other constitutional issues.

For example, can students be threatened with expulsion if they refuse to comply with a school regulation requiring them to salute the flag and recite the Pledge of Allegiance? Must a student submit to random urinalysis tests for drugs in order to participate in interscholastic athletics?

Written by J. Devereaux Weeks, an attorney and legal research associate, the book is short (50 pages) and to the point. Cases are summarized, with appropriate legal citations included.

Student Rights is available from Publications Program, Carl Vinson Institute of Government, University of Georgia, 201 North Millege Avenue, Athens, Georgia 30602. $11.95 plus 5% S&H for orders under $50.

Light Up Their Life

Sylvania Electric, a division of GTE, is promoting 7:00 to 8:00 p.m. as "America's Official Reading Time." The program is designed to help do something to reverse these dismal numbers: 23 million U.S. adults are functionally illiterate (lacking basic skills beyond fourth-grade reading level); another 35 million are semi-literate (can't read beyond an eighth-grade level).

According to RIF (Reading Is Fundamental), more than one million teens drop out of school each year, 85% functionally illiterate. Another 700,000 graduate unable to read their own diplomas. A recent study of fifth graders showed reading books occupied less than 1% of the time between the end of school and sleep, compared to more than 2 hours of gaping at television.

It is essential that a specific period of time be set aside just for reading. Without this, the reading habit will not become ingrained. A key part of the promotion, a free booklet entitled *How To Get Your Kids Excited About Reading*, was developed in cooperation with the national non-profit RIF and contains suggestions for getting children interested in reading. ❑

STATS

Investment in Technology Lagging in Schools

The investment in technology per worker in the U.S. averages about $50,000. High-tech workers get as much as $300,000; for service workers it can be as low as $7,000. And investment in technology per educational worker is a pitiful $1,000.

Computer Ratio: 1:18

Despite all the hoopla about technolgy, 40 years after the computer was invented and more than a decade after PCs became ubiquitous in the real world, there are on average only 2.5 computers in elementary and secondary schools, or about one for every 18 students. More than half of these are over four years old.

Further, while the number of computers in public schools increased by only 9% over the year before, the figure for Catholic schools went up 16%. For private schools it surged by 24%.

*(**Editorial Comment:** Recent surveys show that 50% of high school graduates are not qualified for employment. When will educators begin to suspect they are not preparing students for the high-tech world awaiting them?)*

*(**Further Editorial Comment:** American College Testing was recently awarded $1.4 million to study student workforce readiness. That amount would buy 14,000 computers.)*

Teachers: Female and White

The National Center for Education Information reports that women continue to dominate among teachers, 71% female to 29% male. Ninety-two per cent of teachers are white, 5% are black, and 3% Hispanic and "other."

$$$/College Ratio the Same

If you attend a four-year college, chances are your family has money. A recent study showed that 20% of students at four-year colleges came from the lowest-income group, while 40% were from the highest. Further, there was a higher drop-out rate among those low-income students who did begin at four-year colleges.

Recession Hits Children Hardest

More than one-fourth of America's children are living in poverty, according to Census Bureau data. In some large cities (Detroit, New Orleans, Atlanta, Miami, Cleveland) it can be as high as 46%; but the rate is just about as high in many smaller cities, e.g., Laredo (46.4%), Flint (44.6%), Fresno (36.9%).

The culprit is the faltering economy, the loss of manufacturing jobs to other countries, the rise of single-parent families, and the decline of anti-poverty programs. ❑

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Despatches from the Front:

Big Doings at Comdex

The gargantuan Comdex/Fall trade show, the computer industry's World Series, is held every year—perhaps appropriately, for users as well as venture capitalists—, in Las Vegas. This year's PC jamboree began on November 17, and besides the polyester frivolity such as pop concerts, chili cook-offs, armadillo races, and some primitives at IBM PC Co. bringing a live cougar onstage, here's some of the stuff that went on that might be of interest to we of the *EPIEgram* community:

☛ The fresh multimedia jam was held at Bally's. At last, IBM, Microsoft, and Apple were showing their cards, pledging common allegiance to a single video compression standard, and promising, at least, file transfer compatibility.

Meanwhile, lesser giants such as Digital Equipment, Texas Instruments, and Tandy were eagerly pitching their own multimedia products, each reputedly the "first complete systems solution for multimedia." DEC's stresses networking; TI's includes all components and peripherals; and Tandy's is designed for a home office.

IBM previewed its multimedia displays the night before the show opened, and revealed its strategy for the technology: networking. "It has to be connected," pronounced IBM Assistant V.P. Michael Braun in his Bally's keynote spiel. Big Blue brought in a mainframe and hooked it up to a horde of PS/2s, running dozens of applications on the show floor. One hour of full-motion video would take up 1000MB of disk space; big users would need thousands of gigabytes in storage, with many employees accessing it at the same time. With a mainframe delivering that kind of power, an IBM exec said, "You can train hundreds of employees at once." IBM is working with Ameritech (see page 3) on entertainment applications, such as delivering movies over telephone lines to homes and video stores. IBM hopes also

continued on page 13

The 90's: Decade of Multimedia?

An intensive study by Market Intelligence of Mountain View, California, shows how Multimedia will begin rapidly to change the way the entire nation communicates during the 1990s. While initially to be felt most strongly in corporate and educational markets, it will gain acceptance even among low-end users later in the decade for interactive books, games, and lessons.

Interactive video will emerge on computer networks during the decade ahead. (Read about the nitty-gritty in the accompanying article on Comdex.) Applications with multiple media elements such as voice-annotated spreadsheets and video electronic mail will emerge in corporate environments. Multimedia will increasingly become an integral part of the ever-proliferating computer networks as the ability to send voice and video across both LANs and WANs increases. *EPIEgram* believes this can give an entirely new dimension, for example, to Distance Learning.

While high prices have constrained the market for years, recent price reductions are likely to spur more rapid market development and user adoption. Multimedia will explode if prices continue to drop as projected, and nothing in turn can bring prices down further and faster than a mass market.

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SCISS/TESS Update
Begins on Page 5

More of *The Latest*
Software from
TESS!

Five Big Pages Stuffed with
Program Data and Descriptions

In the

NEWS

Channel One Knows Way to San Jose

A California judge recently declined to ban Channel One in William C. Overfelt High School in San Jose. The State Superintendent of Public Instruction, the state PTA, and two teachers from the school had joined in a suit to declare it in violation of the state compulsory-education laws. It ain't necessarily so, said Judge Jeremy Fogel, but left the lawsuit open while evidence is gathered, pro and con.

Court Allows Clergy Voice in AIDS Curriculum

The Supreme Court has declined without comment to review New York State's policy of requiring religious figures to take part in advising public school districts on their AIDS curriculum.

A 1988 regulation requires school districts across the state to set up AIDS advisory councils to make recommendations to school boards on what to include in AIDS-awareness curricula. An advisory council must comprise "parents, school board members, appropriate school personnel, and community representatives, including representatives from religious organizations."

The New York State School Boards Association opposed the policy, claiming it violated the First Amendment clause against an establishment of a religion. But the state courts had found that the role of the religious figures—advisors with no direct responsibility for the curriculum—did not constitute an imposition of religious beliefs.

Basis of Dyslexia Sought

Neuroscientists have found new indications that dyslexia, also called developmental reading disorder, may be linked to structural abnormalities in the region of the brain which governs language.

Dr. Christiana M. Leonard and co-researchers at the University of Florida studied detailed MRI scans of the brains of 31 people from professional families: nine dyslexic, 10 nondyslexic close relatives, and 12 persons with no family history of dyslexia. They detected "striking differences" in the structure of the brain's cortex in most of the dyslexic subjects and in many of their family members, from what they found in the control group. The differences were detected through computer-assisted analysis of the cortical region.

Dr. Leonard and her co-researchers observed that members of dyslexic families have a reduction in a language-processing area of the brain's right hemisphere: the planum, composed of the temporal bank, which translates sounds into meaningful language, and the parietal bank, which processes visual and spatial information. In all 12 of the subjects who lacked a family history of dyslexia, the temporal bank was longer than the parietal bank in both hemispheres; but in most the dyslexic group a mismatch was found: longer temporal banks on the left and longer parietal banks on the right.

"We believe the disparity between the two groups results from a shift of tissue away from the language-processing area in dyslexics," Dr. Leonard said. "We detected this shift in both the dyslexics and some of their nondyslexic families. It's our hypothesis that this abnormality may enhance the individual's visuospatial skills at the expense of language processing."

The group also found that many diagnosed dyslexics have other brain abnormalities such as a duplication or absence of a structure called Heschl's gyrus that processes sound signals and sends them to the language area: "Our findings indicate that these abnormalities in the brain cortex may lead to a scrambling of the nerve cell connections that integrate visual and auditory sensations, producing confusing sensory representations of letters and making reading difficult," said Dr. Leonard. Others have suggested that somewhat the same basis may lie behind certain speech disorders.

"The anatomical findings are important because they provide a biological marker of cognitive function. Physicians may be able to use these biological markers to help diagnose and classify individual patients, and to help develop new methods of therapy targeted at specific cognitive disabilities." Dr. Leonard went on to say that the next step will be to find whether children with specific brain abnormalities have specific behavioral profiles. "If so, we can use our anatomical findings to improve teaching strategies that tap the cognitive strengths of children with particular cortical patterns. However, many more studies will have to be performed before we reach that stage."

Tracking Lacking

In a report sure to cause controversy, the current and former heads of the Center for Research on Effective Schools for Disadvantaged Students (Johns Hopkins University) found "there is little reason to continue the between-class ability grouping practices so prevalent in American middle and high schools."

Evidence exists, the researchers report, that students placed in a low track did "significantly less well" than similar low-achieving but untracked counterparts. Further, "There appears to be no consistent corresponding benefit of ability for high or average achievers either."

Despair

Sixty-five Connecticut students—20 from Norwalk and 45 from surrounding towns—take courses in Japanese at the Japanese Center at McMahon High School in Norwalk. The Center for Japanese Studies Abroad, financed by state and corporate donations, arranged for some of them to take a two-week trip to Japan. They learned what Japanese know about Americans: that they eat chiefly beef, are pro wrestling fans, and constantly flash the peace sign. Every American girl wears boy's clothes and acts like Madonna. One returning young lady was asked by a New York *Times* reporter for *her* impression of cultural differences. "Japanese kids are really into, like, Guns 'n' Roses, you know? McMahon's kids are into rap. And in Westport, it's more Michael Bolton and U2."

It's a small world after all. ❑

Business & Education

The Bells Are Ringing

Helping Schools Find New Ways

Ameritech, the Chicago-based parent of the Bell companies in Illinois, Indiana, Michigan, Ohio, and Wisconsin, has unveiled a $750,000 awards competition that will encourage schools in the Midwest to find creative and innovative ways to use electronic communication to improve the quality of education. The announcement was made in connection with the debut of Ameritech's traveling SuperSchool exhibit, a hands-on display showcasing communication services to enhance learning.

"Our fundamental interest is to demonstrate how communications can impact education," Barry Allen, president of Wisconsin Bell, was quoted in a press release. "Many schools have the know-how and creativity, but lack the funding. Ameritech wants to give them the financial and technical support to improve the learning process by improving their use of information."

Grants will be awarded in each of Ameritech's five states. Principals and school district superintendents representing more than 7,700 schools in the Ameritech region will soon be sent more details of the competition. Schools will be invited to describe their plans to use networked telecommunications technology to improve education.

Applications will be accepted beginning in January; winners will be announced next May. Public and private schools at all levels are eligible for the grants.

For more: Ameritech, Steve Ford at 312 750-5205, or Mike Brand at 312 750-5219.

Short Distance Learning

Meanwhile, Bell Atlantic is teaming up with Gandalf Systems and Sun Microsystems to provide distance learning and telecommuting applications for colleges and universities using ISDN (Integrated Services Digital Network): an all-digital network which integrates voice, data, and image services on a single telephone line. ISDN would give users the same capacities at their homes off campus as they get working at computers or workstations on campus, directly connected to the campus network.

"College campuses today are data-intensive environments," Warren Pyles was quoted in a press release. He's the Bell Atlantic market manager for higher education. "The problem is that access to information through a campus network is pretty much confined to PCs and workstations on campus, but a growing number of students are living off campus because of a scarcity of dormitory space."

Pyles said the variety and complexity of the curriculum at many institutions demands more frequent collaboration between teachers and students and immediate access to the resources they need whether they're working off campus or on campus in their library or computer lab. He said that ISDN, with its higher bandwidth, provides the ideal solution.

Bell Atlantic is seeking colleges and universities interested in participating in ISDN trials of telecommunications and distance learning applications during the 1993 spring semester.

For more details, call the sanguine Pyles at 703 974-3209 or Pat D'Innocenzo, ISDN Applications Manager, at 301-236-1885.

Bell Atlantic is the parent of New Jersey Bell, Bell of Pennsylvania, Diamond State Telephone (Delaware), and the Chesapeake and Potomac Telephone Companies serving Maryland, Virginia, West Virginia, and D.C.

NAB Extols BellSouth

The National Alliance of Business (NAB) has selected BellSouth Corporation as the Company of the Year for outstanding and innovative leadership in workforce development and education reform.

continued on following page

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Earl L. Fultz, Editor & Publisher
P. Kenneth Komoski, Executive Director, EPIE Institute
Pat Lutzky, Manager, SCISS\TESS

The company has partnerships with more than 200 schools in southeastern states and provides management training for school administrators. In addition, it works with 36 "adopted schools" in Alabama on programs which address issues such as academic excellence and dropout prevention. Other activities include a grants program for Alabama teachers to explore innovative classroom activities.

The BellSouth Foundation recently invited Alabama educators to a seminar to explore ways to tie education to Information Age communications. A Principals' Leadership Program, begun in 1989, allows secondary school principals to attend, tuition-free, the same management classes taken by managers of its South Central Bell subsidiary.

Ask Deborah C. Hughes of South Central Bell at 205 972-3766.

Microsoft and 30 Other Software Firms Endorsed Clinton

Before the election, corporate honchos of the largest software makers in the Northwest, including Microsoft exec VP Steve Ballmer, said they had formed a political alliance called "Northwest Software Company Executives For Clinton and Gore." Moreover, they said—at least according to the sometimes semi-literate UPI—that their companies also had endorsed Bill Clinton for president. A statement issued by the group read, "The organization supports the technology policy endorsed by the Clinton/Gore campaign and seeks additional emphasis on issues that particularly affect the software industry, such as intellectual property, distance learning and national computer networks."

Then on November 6th the Associated Press reported that computer-industry leaders who supported Bill Clinton's drive for the presidency were already being considered for top cabinet positions. Apple Computer Chairman John Sculley and Hewlett-Packard Chairman John Young were both said to be in the running for Secretary of Commerce.

Should it make us uncomfortable when developers of educational materials involve themselves in politics?

Tapes from Junk Food Czars

Safeway, Pepsi, and Frito-Lay now have a "Tapes for Education" program designed to help schools stressed by budget cutbacks. Call 301 386-6900.

IBM Continues Loaner Program

Since long before business/school cooperation was fashionable—for 21 years, in fact—, IBM has been loaning employees to teach science and engineering. In the 1992-93 school year, there will be 34 full-time participants in the Faculty Loan Program. The participants are on loan for one year (at full pay) and are targeted to help and encourage "minority" and disadvantaged students in colleges and universities.

Other IBM employees work with schools on a regular basis, and on any given day about 22,000 IBM volunteers will be working in schools around the country. Contact your local IBM Ed Rep for more information.

Harsh Critic of Business/Education Connection

In *Winter Dissent*, excerpted in the September *Harper's*, Robert B. Reich lays about him regarding the much touted contributions of business to education. Reich, feisty professor at the John F. Kennedy School of Government at Harvard, is a leading member for economic policy on the Clinton transition team. His ideas may prove influential during the next four to eight years.

While American business says it spends $30 billion on education (some sources have put it at as high as $65 billion), the truth is that money spent, whatever the figure, tends to go for those who already have college degrees (50%), while a mere 8% is spent on training to improve reading and writing skills. Reich says a similar ratio holds in direct donations, most of it flowing to elite universities (such as the one employing the professor).

To make a bad situation worse, corporations drain local tax revenues by demanding (and getting) tax breaks and subsidies as a condition for remaining or for locating a new plant. Corporations now pay less in local taxes than ever, which means that ordinary citizens get hit with onerous school taxes.

Corporations make up for the brain deficit by hiring from overseas. Reich quotes the Bush Administration's 1990 Economic Report: "With projections of a rising demand for skilled workers in coming years, the nation can achieve even greater benefits from immigration."

Reich also points out that foreign-owned firms do more educating of workers. Japanese-owned firms (which you may be surprised to know now employ almost 2 million workers) spend an average of $1,000 a year more than American firms to train low-level workers. (*Consumer Reports*, by the way, says it can find no difference in the quality of Japanese cars produced in America from that of cars produced in Japan.)

Instead of preparing to invest the $1 trillion or so needed to get American education up to speed, the government, according to Reich, appears to be going in the opposite direction: Head Start, child nutrition, and other preschool programs are under-financed and per-pupil spending through high school lags behind that of every other industrialized nation. Government help in training workers has been cut in half since 1980 and grants and loans to college students have shrunk almost 15% in the past decade.

What to do? France has one answer: laws that require every business to devote 1.5% of its total payroll to the training of non-supervisory workers.

Another step, *EPIEgram* believes, is for schools to start teaching what students need to know. ❑

THE STATES CONSORTIUM FOR IMPROVING SOFTWARE SELECTION
SCISS
TESS
THE EDUCATIONAL SOFTWARE SELECTOR
UPDATE

Indiana ESCs Moving Swiftly with TESS

The process of distributing the TESS database throughout Indiana is taking on new strength this school year, thanks to the state's regional Educational Service Centers.

Indiana, whose initial membership in the States Consortium was made possible last year by Purdue University, will provide copies of the database to Indiana schools that belong to the ESC statewide Consortium. Dr. John Soudah, Director of the Northwest Indiana ESC, has arranged with EPIE on behalf of all Indiana ESCs to make TESS available, also, to Indiana schools that are not yet a part of the ESCs' consortium on an individual -fee basis.

A participating Indiana school is one which subscribes to the services provided by its regional ESC.

New PC and Mac TESS Ready to Roll Out

EPIE is rolling out a new version of PC TESS and Mac TESS (the winter update).

During this recent updating process, EPIE and its consulting staff at Data Crafts, Inc., contacted more than 1,000 software suppliers nationwide to find out what new educational software programs have been produced since the last TESS update.

This new version of the TESS database will offer more than 500 new software programs for the Macintosh and about 400 new products for DOS computers. One of the enhancements in this new version will offer users an easy means to save information about "owned" products, and import that data into new versions of the database as they become available.

And for the Bibliophiles....

The print version of TESS, *The Latest and Best of TESS*, is also available to States Consortium members. Schools wishing to purchase a copy of this subset of the full TESS database may do so through EPIE Institute at a substantial discount afforded to Consortium members only.

The Latest and Best of TESS (1991-92 edition) contains information on more than 2,000 programs. Among them are more than 500 of the most highly rated by 41 different software-review sources, including EPIE Institute.

The 1991-92 edition, originally listing for $49.95, is specially priced at $10 (plus $5 shipping and handling) to schools participating in the States Consortium. The next edition of *The Latest and Best of TESS* is now being prepared for publication., is expected to come off the presses in March 1993, and may be ordered from EPIE Institute, 103-3 West Montauk Highway, Hampton Bays, New York 11946. Telephone 516 728-9100; fax 516 728-9228.

Software Demo System Established at USC Site

Apple Computer and the Intellimation Higher Education Library for the Macintosh have come up with an interesting system for helping educators choose curriculum-based software. It is at once far superior and far inferior to the EPIE Institute's Educational Software Selector.

Superior because it operates as a designated system which actually allows the user to "test-drive" software demos; inferior because it is a selling system restricted to 200 titles for the Macintosh, compared to the more than 12,000 in TESS, from all publishers and for all makes of computers.

Intellimation's research revealed that higher-ed faculty tend to make curriculum decisions based on materials available through college bookstores. Accordingly, when they chose a site for the first "Courseware on Site" kiosk, they settled on the bookstore at the University of Southern California, Los Angeles - with the university's blessings and assistance.

Thom Hill, the Project Manager for Courseware on Site, writes in *T.H.E. Journal*: "Dr. Kenneth Green, director of USC's Center for Scholarly Technology, believes that the Intellimation kiosk and related efforts on the part of software and print publishers provide an important opportunity to break the traditional calendar-based curriculum cycle. Instead of selecting and ordering course materials four to six months prior to the beginning of a term, faculty and students can try out and purchase software resources when needed – in the middle of a term, before or after a critical class, or the weekend before a major exam or final."

The system is housed in a kiosk and features a touch-sensitive screen so that even chowderheads will be able to run the demos. Like TESS, programs can be sorted by any combination of subject, title, key words, or hardware and memory requirements. [*Technosprite*: And with only 200 entries, it will be quite a while before the disk drive wears out.] The user can select which applications to "launch,"

continued on following page

and then after deciding on a purchase can have the kiosk print out a bar-coded slip to take to a cashier and have the order quickly filled. This is, of course, a sales device; and surely it must be seen as the wave of the future in educational software marketing. Courseware On Site does not even use CD-ROM: it consists of two Macintosh rigs and a whopper 160MB hard disk; and with the spread of multimedia technology, may we not hope to see such a demo system, but one with thousands of titles, in every school library? And will software publishers not recognize that it is in their enlightened self-interest to have such access available to all schools, and for all software?

For more information from Intellimation: "Kiosk Department," P. O. Box 1922, Santa Barbara, California 93116-1922. Telephone 800 346-8355.

Software and Technology

Digital Book System

Franklin Electronic Publishers, the electronic book czar, have begun shipping the world's first PDA (Personal Digital Assistant), called the DBS-1 (Digital Book System).

Franklin says that by the end of the year the DBS-1, with a list price of $199, will be in 10,000 retail outlets, including Radio Shack and Sharper Image.

The basic package will include two digital books, *Merriam-Webster's Dictionary Plus* dictionary and thesaurus, with more than 274,000 definitions and 496,000 synonyms; and *Word Games*, a collection of ten...er...word games. Also available is the *Video Companion*, a guide to 7,000 movies on videotape, and, grotesquely, *The Medical Letter Handbook of Adverse Drug Interactions*.

The company plans to publish over 50 books within the next year, including the *Physicians' Desk Reference*, travel and buyer guides, telephone directories, and reference books on investments, nutrition, health, emergency information, entertainment, cooking, and gardening. Prices will range from $29 to $129.

The future of PDAs [*Technosprite*: But change the stupid name, okay?] seems vast. There are thousands of business and government agencies where directories, rate cards, instruction manuals and other databases are critical to productivity in the field. And here is an inexpensive technology for putting dictionaries, encyclopedias, and so forth, at every school desk.

The 4.6-ounce, index-card-sized DBS-1 is a hand-held, 16-bit computer powered by lithium batteries which will operate for as long as a year. Using Franklin's data-compression technology, the DBS-1 can store up to 90MB of information in two removable, digital books. Users may conduct "fuzzy searches," which allow you to retrieve information by the first few letters of a word. Data is viewed on a 5-line LCD, with variable fonts and even graphics. In addition, up to 60 lines of text can be entered into the DBS-1's built-in notepad, which is independent of the installed books. Connectivity and communication cards are also planned.

For more information, call Mindy Fendrick of Franklin Electronic Publishers at 609 261-4800.

Grolier Multimedia Encyclopedia Supports Video for Windows

Grolier Electronic Publishing, the CD-ROM czars, have announced a version of their best-selling CD-ROM encyclopedia, the *New Grolier Multimedia Encyclopedia*, developed using Microsoft Video for Windows.

The Video for Windows technology allows motion video clips of historical events, famous people in history, NASA missions, major sporting events, and so forth to be added to electronic reference works.

Other new features include animated sequences of aircraft technology, weather, the human body, the solar system and more; the Timeline, which allows users to conduct a journey from prehistory to the present; the Knowledge Tree, which can be used to explore broad categories before branching out to specific areas; thousands of pictures; more than 250 high-resolution color maps, including all regions of the world, all countries and all 50 U.S. states; and high-quality audio, including excerpts from famous speeches and musical compositions, as well as animal sounds, bird calls, and audio-supported video clips.

The product is currently shipping and is available from Ingram Micro, Soft-Kat, Software Resource, and the Bureau of Electronic Publishing, at a (probably meaningless) list price of $395.

For more: Maryanne Piazza of Grolier Electronic Publishing at 203 797-3365 or 800 356-5590.

Newsweek on CD

Newsweek has announced it will publish a quarterly CD-ROM version of the magazine. *Newsweek Interactive* will be sold by subscription, with the first disk available in January.

Where No Screen Saver has Gone Before

Star Trek: The Screen Saver has hit local screens—computer screens—to save them from the calamity of phosphor burn-in. (A screen saver is a program which displays images on a computer monitor after a period of inactivity, safeguarding it from burned-in images.)

The Screen Saver features the original crew of the U.S.S. *Enterprise*. Captain Kirk, Spock, Bones, and Scotty make digitized and animated guest appearances on the new Berkeley Systems program, which even features their digitized voices. The delighted enthusiast can now hear Spock's beloved, "Fascinating," and Dr. McCoy's classic, "He's dead, Jim," over and over again while he's on the phone with a client. It also features theme music from the television series. At press time we had not

been able to determine whether the program or its updates will include Yeoman Rand or the Salt Vampire; but it sounds like just the sort of real productivity-buster we like.

Berkeley Systems are the producers of the strangely yet hugely successful *After Dark* screen-saver program, with its celebrated Flying Toasters. [*Technosprite*. Also—in case you want to be the hippest dude in South Dakota—they sell a Flying Toasters T-shirt too.]

Starter Set

Want to move your child along on computers a bit faster than it looks like the school is going to do it? Check out *Tic, Tac, Type: A Child's Computer Writing Kit*. As an introduction to computers and word processing on any DOS computer, it is designed for children over eight but can serve well for adults, too. It even has a disk with a not-so-bad word-processing program. Written by Marta Partington, the price is right: $19.95. From SAMS of Carmel, Indiana, a division of Prentice Hall. It's not *WordPerfect*; but then, for most users, *WordPerfect* isn't *WordPerfect* either.

Now is Software from Moscow

(Russia has a lot of great programming talent, the fruition of which is frustrated first of all because of a lack of access to computers and advanced programming software. However the following promotion, here faithfully transcribed, suggests certain other difficulties Russian computer firms may face as they struggle to break into the vast American market; and we can only hope that users or associates will find ways to overlook or overcome them, and find the real value they may obscure.)

Smart Book Ltd
12-3-135 Zaharova str
115569 Moscow Russia
tel (095) 390 8452, 433 8477

(Draft proposal and motivation of contract for preparing user's texts in form of Smart Book Diskettes)

Dear Sir,

Please find on the next page the prospect of our company and explanations what a product the Smart Electronic Book diskettes are. You may also ask for DEMO diskette of Smart Electronic Book at our representative Mr Jim Salter (the address is below). It is our hope that such diskettes with various texts and language pairs may be useful as part of any language training. At the moment 3 samples of classical Russian prose are available ($20 for each):

"The Queen of Spade" by A.Pushkin;

"The White Poodle" by A.Kuprin;

"Kashtanka" by A.Chekhov.

These texts have universal value and that is why we have chosen them first. But they are useful for rather experience students of Russian.

To meet the needs and specifics of the training courses in your office, we are ready to prepare in form of the Smart Electronic Books the texts you would like to order. To start with it may be any texts in Russian (and its translation in English) 50-100 Kb long. The possible terms are as follows. The charge about $2000 for each text with your unlimited right to copy, sell and distribute diskettes, or $10,000 with your exclusive write to sell and distribute. These terms are temporary and may be changed during negotiations. We may discuss your orders also for other language pairs.

Perhaps you will find useful to receive regularly some review of Russian periodicals in form of Smart Book Diskettes. For example the shortened month review of "Moscow News" weekly could be such Smart Book Periodical.

At the moment our interests in USA are represented by

Mr Jim Salter, president of
COLOR QUICK professional printing
770 Walnut St, Macon, GA 31201
tel 745 5501, fax 742 0121

Thank you for the attention to our proposal.

Sincerely yours

Alexander Gofen
Representitives: Alexander Gofen, tel. (095) 433 8477, 390 8452
Mr. Nickolai Anatcky, E-mail: nick@ipian15.ipian.msk.su

The firm produces THE SMART ELECTRONIC BOOKS, i.e. specially packed bilingual texts of well-known fiction written on diskettes for IBM PC. The purpose is to make the process of reading and words learning as easy as possible. Such Electronic Books reading may be a part of any language teaching process.

THE SMART ELECTRONIC BOOKS make the studying of foreign languages easy and pleasant. When a student is reading such books either tiresome searching in the dictionary or difficult selecting of the convenient meaning from the different usages is no more necessary. (Searching a word in Russian dictionary may be especially difficult for foreigners who doesn't know different forms of the same word).

While reading the user can:

- look the context-dependent translation for every unknown word;

- add the larger context if needed;

- scroll the text in the native or foreign language, in the traditional or in special format, when any text line on the screen represents a closed phrase or logically finished part of it;

- collect unknown words in files for farther studying.

This system does not aim to provide for the reader all possible usages for an unknown word. Instead the reader has as a prompt just that single meaning that is actual for the context (it is the reason why the reading process is so easy). Nevertheless if the full article of the dictionary entry point is also needed, the user may purchase one of electronic dictionaries systems available on the market and use both systems concurrently.

Suppose, some resident program providing access to full enough bilingual dictionary is loaded. Running the SMART BOOK after it the user can call also the full article from this dictionary for any unknown word and therefore learn the ALL usages of this word or expression. The same way if a program for pronouncing words highlighted on the screen through the internal speaker is available, it adds the option to make the prompt sounding.

Some future electronic resident dictionaries based on CD ROM technology may incloud many pictures and animation. Then the Smart Book reading process also will provide prompts with video clips.

Such systems are much more expensive in comparison with the Smart Books. However the user should purchase them only once for many purposes and for different Smart Books. ❑

The Latest of TESS
Assorted Educational Programs from String to Young

THE STRING QUARTET
Warner New Media
Fine Arts: Music; Musical Terms and History
Grades 9-College
Contains a digital recording of Beethoven's *String Quartet No. 14* on a CD-ROM disc, which is enhanced by thousands of pictures, additional audio, commentaries and historical information, plus a glossary and index, all interactively accessible with a Macintosh computer.
Apple Macintosh 512E, Plus, SE, II.

STUDENT'S DREAM TOOLS
Slippery Disks
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Grades 5-College
Contains three stacks plus HyperCard 2.0. Stacks include: *Events Day by Day*, births and deaths of famous people, 4,000 events in history, and more; *Stack of Lists*, 600 lists of people, places, and things worldwide; and *Stack of Decades*, a card for each decade from the 1650s onward.
Apple Macintosh 512E, Plus, SE, II, OS/2, $89.

SUGAR SCIENCE: PHOTOSYNTHESIS TO FOOD
The Sugar Association
Science: Biology
Grades 4-8
Gives students the opportunity to explore photosynthesis, the way plants make food; respiration, the way plants use food; and the food chain, the way grass becomes a steak. Teaches students basic chemistry by showing them the functional roles sugar plays in many everyday foods, including bread, preserves, and ice cream.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles.

SUN AND SEASONS
MECC (Minnesota Educational Computing Corporation)
Science: Astronomy
Grades 3-9
An astronomy learning tool designed to help students understand the regular and predictable events they see happening in our daytime skies as the seasons change. Students learn to visualize the spatial relationship between the earth and sun as the earth travels in its annual orbit around the sun. Keeps records. Copy protected.
Apple II+/IIe/IIc/IIgs.

SUN LAB
Wings of Learning
Science: Astronomy
Grades 4-8
Students study and explore the astronomy of earth and sun. Supports a broad range of curriculum objectives and combines game-like qualities of simulation with open-endedness of tool software to let students explore and discover concepts in astronomy. Part of the Second Voyage of the Mimi series.
Apple II+/IIe/IIc/IIgs, $75.

SUPERMUNCHERS
MECC (Minnesota Educational Computing Corporation)
Comprehensive: Games, General-Purpose
Grades 8-College
Learn facts in scores of subject areas including animals, sports, famous Americans, food and health, geography, and music. Covers more than 4,000 facts in 130+ categories, and allows user to select game topics, criteria, and difficulty levels. Levels of play become more challenging as user progresses.
IBM PC and compatibles, Apple Macintosh 512E, Plus, SE, II, $49.95.

SUPER SIGN MAKER
Sunburst Communications
Comprehensive: Generalized Tool Programs; Publishing and Printing Tools; Graphics Generators
Grades K-12
A tool for creating banners, signs, handouts, transparencies, and much more. Features a variety of typestyles and letter heights 1/2" to 8", along with special fonts such as block, digital, stencil, and foreign language characters. Offers a choice of special borders: hearts, beads, bricks, and more, which can also be used for filling in letters. Copy protected.
Apple II+/IIe/IIc and compatibles, $75.

SUPER SIGN MAKER LIBRARY DISK #2
Sunburst Communications
Comprehensive: Generalized Tool Programs; Publishing and Printing Tools; Graphics Generators
Grades K-12
Contains two new fonts, ten new patterned borders, and more than thirty new pictures. The pictures are for special days of the year. To be used with Sunburst's Super Sign Maker.
Apple II+/IIe/IIc/IIgs, $49.

SUPER SOLVERS: MIDNIGHT RESCUE
The Learning Company
Reading: Comprehension Skills
Grades 3-5
Morty Maxwell has taken over Shady Glen School! Disguised as a robot he and his team are painting the entire school with disappearing paint. As Super Solvers Club members, students have only until midnight to explore the school, read for clues, and collect facts to out-think their clever opponent. Contains over 200 readings. Part of the Super Solvers series. Reasons *why* they will want to keep school from disappearing not included.
IBM PC and compatibles, $49.95.

A SURVEY KIT
William K. Bradford Publishing Company
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Grades 7-12
Students can use this software tool to create and print their own surveys. They can then administer them directly on the computer or by the traditional paper and pencil method. Offers students help with analysis of the data. Data can be analyzed using descriptive statistics, cross tabulations, and scatter diagrams.
Apple II+/IIe/IIc/IIgs, $51.

SURVIVAL FINANCES
J. Weston Walch, Publisher
Home Economics: Consumerism; Mathematics; Consumer Math
Grades 7-12
Simulation in which students get a job and receive monthly paychecks which must be budgeted and used to pay expenses. They learn to keep a checkbook register, maintain savings accounts, purchase on the installment plan, buy insurance, and complete income tax forms.
Apple II+/IIe/IIc and compatibles, $59.95.

TALK TO ME
Educational Activities
Early Learning and Preschool: Reading; Reading Readiness
Grades K-3
Students learn to associate spoken words with written words by seeing the text and graphics on the screen, hearing the words or phrases, and repeating the words into a microphone. Students can then listen to their own voice recordings and the teacher's words to compare pronunciations. Keeps records. Copy protected. Network version available.
IBM PC and compatibles, $169.

TEACHER OBSERVATION WRITER
James Stewart and Associates
Administrative Software: Employees; Permanent Records
Automated system that allows administrators to prepare a report of classroom observations. Built-in responses make it simple to use.
IBM PC and compatibles, Apple II+/IIe/IIc/IIgs, $195.

TEACHER'S TIMESAVER
Tom Snyder Productions
Administrative Software: Student Records; Comprehensive; Class Management Aids
Comprehensive classroom management system. Includes templates for databases used for scheduling and attendance; a word processor for letters, notes, memos, or progress-report writing; and a spreadsheet for calculating budgets, purchase orders, and student progress. Includes a step-by-step tutorial. For use with AppleWorks 2.0 or Microsoft Works 2.0.
Apple Macintosh 512E, Plus, SE, II/II+/IIe/IIc/IIgs, $99.95.

TESGEN CHEMISTRY: A MODERN COURSE
Towers Educational Services
Science: Chemistry
Grades 9-12
1600 questions correlated to the textbook *Chemistry: A Modern Course*, Merrill Publishing Company, 1990 edition. Built- in text editor for multiple-choice, essay, true/false questions. Each question tied to performance objectives.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, Tandy 1000/3000, $89.

TEST DESIGNER PLUS
Super School Software
Comprehensive: Drill and Test Generators
Grades K-College
Allows teachers and students to make and take tests. Additional features include graphic integration, foreign languages such as Spanish, French, German, Italian, and Vietnamese, timed tests and questions. User can choose from multiple-choice, true/false, completion, fill-in-the-blank, and essay questions. Keeps records. Network version available.
Apple Macintosh 512E, Plus, SE, II, $99.95.

TEST DESIGNER PLUS: MACINTOSH TEST MAKER
Tom Snyder Productions
Comprehensive: Drill and Test Generators
Grades K-College
A test-making program which provides multiple-choice, true/false, completion, fill-in-the-blank, and essay types of questions. Teachers can add diagrams. For all areas of the curriculum. Includes ESL and bilingual modes which support Spanish, French, English, German, and Italian.
Apple Macintosh 512E, Plus, SE, II, $99.95.

THINK AND WRITE
William K. Bradford Publishing Company
Comprehensive: Generalized Tool Programs; Word Processors; Multi-Function Tools
Grades 5-12
A tool for organizing and drafting research papers or original creative works. Uses an index card metaphor to assist in notetaking for research report writing. Students can use their notecards to create the outline of their project. A single command will drop all notecard headings and merge the text into an integrated document. Revise or edit. Network version available.
Apple Macintosh 512E, Plus, SE, II, $51.

THINNING OF THE OZONE LAYER
Full Circle Media
Science: Ecology and Environment
Grades 6-12
Students investigate information to create a convincing presentation on this environmental issue. Requires MindMap by Full Circle Media with videodisc and CD-ROM support, Version 2.2.
Apple Macintosh 512E, Plus, SE, II, $80.

3-2-1 CONTACT: WILD THINGS
Wings of Learning, Division of Sunburst
Science: Biology; Animals; Plants
Grades 3-8
Students use a combination of their own knowledge plus research in the Guide to the Wild Student Book. Goal is to choose a pair of species and then determine what attributes they have in common, using classifications ranging from diets to habitats to life cycles. Network version available.
Apple II+/IIe/IIc/IIgs.

3D IMAGES
William K. Bradford Publishing Company
Industrial Arts: Drafting and Mechanical Drawing; Fine Arts; Art
Grades 5-12
A drawing tool that allows user to construct, develop, and manipulate figures in space. Using four basic objects—lines, circles, rectangles, and polygons—along with the program's drawing tools, users can modify the objects in various ways. Network version available.
Apple Macintosh 512E, Plus, SE, II, $149.

TIMELINER: AFRICAN-AMERICAN HISTORY
Tom Snyder Productions
Social Sciences: History; United States History
Grades K-12
Covers slavery, the civil rights movement, and notable African-Americans in politics, science, the arts, education, and more. Requires TimeLiner program by Tom Snyder Productions. Part of the TimeLiner series. Network version available.
Apple Macintosh 512E, Plus, SE, II/II+/IIe/IIc/IIgs, $19.95.

TIMELINER: SPACE
Tom Snyder Productions
Science: Astronomy; Social Sciences; History
Grades K-12
Covers early astronomy to modern space exploration. To be used in with Tom Snyder Productions videodisc, The Great Solar System Rescue. Part of the TimeLiner series. Network version available.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $19.95.

TNT TEMPORARIES: OFFICE KEYBOARDING SYSTEM
J. Weston Walch, Publisher
Business: Typing
Grades 9-12
As "employees" of TNT Temporaries, students practice their word-processing skills on real-life documents for a variety of businesses. Students create and correct business letters, outlines, reports, tabular material, and itineraries; merge form letters; and perform jobs that require creative formatting.
Apple II+/IIe/IIc and compatibles, IBM PC and compatibles, $59.95.

TOUCH TYPING FOR BEGINNERS
IBM
Business: Typing
Grades 3-12
Designed to teach touch typing and help students improve their typing skills. Emphasizes proper typing technique and finger placement. Lessons and exercises provide practice for every letter and numeral on the keyboard. Enhanced graphics, games, and activities. Copy protected. Network version available.
IBM PC and compatibles, $84.

TRANSPARENT LANGUAGE - GERMAN
Transparent Language
Foreign Language: German
Grades 5-12
Enables English speakers to read and understand foreign language literature immediately. Uses proprietary technology to capture and record student's knowledge of each word, phrase, and sentence in a story. Student reads along, getting instant vocabulary, grammar, or other help needed to continue reading the story with understanding.
IBM PC and compatibles, $99.

TRANSPARENT LANGUAGE - LATIN
Transparent Language
Foreign Language: Latin
Grades 5-12
Enables English speakers to read and understand foreign language literature immediately. Uses proprietary technology to capture and record student's knowledge of each word, phrase, and sentence in a story. Student reads along, getting instant vocabulary, grammar, or other help needed to continue reading the story with understanding.
IBM PC and compatibles, $99.

TRANSPARENT LANGUAGE - FRENCH
Transparent Language
Foreign Language: French
Grades 5-12
Enables English speakers to read and understand foreign language literature immediately. Uses proprietary technology to capture and record student's knowledge of each word, phrase, and sentence in a story. Student reads along, getting instant vocabulary, grammar, or other help needed to continue reading the story with understanding.
IBM PC and compatibles, $99.

TRANSPARENT LANGUAGE - SPANISH
Transparent Language
Foreign Language: Spanish
Grades 5-12
Enables English speakers to read and understand foreign language literature immediately. Uses proprietary technology to capture and record student's knowledge of each word, phrase, and sentence in a story. Student reads along, getting instant vocabulary, grammar, or other help needed to continue reading the story with understanding.
IBM PC and compatibles, $99.

THE TREEHOUSE
Broderbund Software
Comprehensive: Games, General-Purpose
Grades K-4
Designed for elementary-age students and covers an even wider range of subjects. As students explore the on-screen hideaway, they learn about music, animals, mathematics, sentence structure, money and place value. In addition, the games encourage creativity, exploration, deductive reasoning and strategic thinking.
IBM PC and compatibles, $69.95.

TYPE TO LEARN GRADEBOOK DISK
Sunburst Communications
Business: Typing
Grades 2-12
For teachers working with computer labs where many students are using Sunburst's "Type to Learn" simultaneously. Simplifies and unifies record-keeping by gathering the records for all the disks on one master gradebook disk. Includes stickers.
Apple II+/IIe/IIc/IIgs, $65.

U.S. HISTORY DATELINE: COMPUTER TIMELINES
J. Weston Walch, Publisher
Social Sciences: History; United States History
Grades 7-12
Provides timelines and quizzes covering the Revolution, New Nation Expansion and Development, Civil War, and Industrialization and Reform Periods. Allows students to make connections between people, events, discoveries, inventions, and judicial decisions from specific periods of American history. Keeps records.
Apple II+/IIe/IIc and compatibles, $39.95.

VENTURE: THE STOCK EXCHANGE IN ACTION
J. Weston Walch, Publisher
Business: Investments
Grades 7-12
Investment simulation in which students are given $200 to $30,000 to invest in any of 15 profiled companies. At end of "stock year," five realistic events, randomly selected from 75 possibilities, affect stock prices. Students then analyze the impact on the market and their portfolios. Keeps records.
Apple II+/IIe/IIc and compatibles, IBM PC and compatibles, $39.95.

VERY FIRST <IN COMMON> DISKETTE
Sunburst Communications
Early Learning and Preschool: Reading; Reading Readiness
Grades K-2
Allows students beginning their study of letters and numbers to practice in a context that helps them sharpen classification and categorization skills. For students who are already reading, includes data files on color names, animals, articles of clothing, means of transportation, and simple arithmetic.
IBM PC and compatibles, Tandy 1000/1200, $65.

THE VIETNAM WAR 2.0
Regeneration Software
Social Sciences: History; World History
Grades 7-College
A HyperCard-based history. Materials include text cards covering 61 topics, animated charts and maps, interviews with veterans, movie reviews, etc. Provides a full history of the war through use of sounds, animation, and graphics.
Apple Macintosh 512E, Plus, SE, II, $24.95.

VOLKSWRITER 4
Volkswriter
Comprehensive: Generalized Tool Programs; Word Processors
Grades 7-College
Includes a fully integrated grammar corrector that can analyze sentence structure and correct errors in grammar, usage, punctuation, and style. Features include an integrated 170,000-word spelling checker, point-and-pick file retrieval, undelete, case conversion, word count, automatic envelope printing, mail merge, notepad, and on-line tutorials. Network version available.
IBM PC and compatibles.

WAGON TRAIN 1848
Social Sciences: History; United States History
Grades 5-9
MECC (Minnesota Educational Computing Corporation)
Interactive cooperative-learning adventure that puts kids in shoes of 19th-century pioneers traveling the Oregon Trail to survive mishaps and other random events. Players work together; one wagon's troubles can affect everyone else. Works with groups of Macintosh computers (Macintosh Plus or later models), connected via an Apple Talk-based network.
Apple Macintosh 512E, Plus, SE, II.

WHALES DATABASES
Sunburst Communications
Science: Oceanography; Biology; Animal Organisms
Grades 4-12
Used with the "Bank Street School Filer" to explore, gather, and analyze data, answering all kinds of questions about whales. The Teacher's Guide contains activities that focus on database information such as taxonomy, features, fins, and behavior of marine mammals.
Apple II+/IIe/IIc/IIgs, $59.

WHAT'S THE DIFFERENCE: INVERTEBRATES
Tom Snyder Productions
Science: Zoology; Biology; Animal Organisms
Grades 7-12
A classification tool covering similarities and differences among invertebrates. Includes an online glossary and comprehensive database, as well as visual representation of each step in the classification process. Covers eight major phyla of invertebrates and common characteristics, and has a section on arthropods.
Apple Macintosh 512E, Plus, SE, II, $79.95.

WHAT'S THE DIFFERENCE: VERTEBRATES
Tom Snyder Productions
Science: Zoology; Biology; Animal Organisms
Grades 7-12
A classification tool covering similarities and differences among vertebrates. Includes an online glossary and comprehensive database, as well as visual representation of each step in the classification process. Covers seven classes of vertebrates and common characteristics and representatives of each class.
Apple Macintosh 512E, Plus, SE, II, $79.95.

WHERE IN AMERICA'S PAST IS CARMEN SANDIEGO?
Broderbund Software
Social Sciences: History; United States History
Grades 6-12
Comes with Penguin Books' *What Happened When*, a 1,300-page encyclopedia of American culture and history. Over 1,200 clues contain information about folkways, philosophy, science, the arts, theater, sports and more. Game play has 45 destinations available at any time, covering 5 regions of the United States and 9 time periods (from A.D. 986 to the present). Keeps records.
IBM PC and compatibles, $69.95.

WHERE IN TIME IS CARMEN SANDIEGO?
Broderbund Software
Social Sciences: History; World History
Grades 6-12
In the form of a detective chase, highlights important people, events and inventions of the past 1,500 years. Carmen and her gang get their hands on a time machine that allows them to transport themselves back in time, from 400 A.D. to the 1950s. Keeps records. Copy protected.
IBM PC and compatibles, $49.95; Apple Macintosh 512E, Plus, SE, II, $49.95; Apple II+/IIe/IIc/IIgs, $44.95; Commodore Amiga, $49.95; Commodore 64/128, $39.95.

WHERE IN THE WORLD IS CARMEN SANDIEGO? DELUXE EDITION
Broderbund Software
Social Sciences: Geography
Grades 4-12
Same as Where in the World is Carmen Sandiego? but adds high-resolution digitized graphics from slides provided by the National Geographic Society, five times more animations, more than 2,000 clues, digitized sound, and newly composed music. Also contains 20 villains and covers 45 countries. Keeps records.
IBM PC and compatibles, $89.95.

WHO WAS BORN ON YOUR BIRTHDAY?
K-12 MicroMedia Publishing
Social Sciences: History; World History
Grades 3-10
A database containing the birth dates, occupations, and nationalities of more than 10,000 famous people with header files that can easily be customized. Can be used for fund-raising activities. Network version available.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $29.95.

*WORD I.D. SYL*LAB*I*CA*TION*
Educational Activities
Reading: Decoding Skills
Grades 1-6
An interactive tutorial that helps students learn to divide words into syllables. Emphasizes word identification strategies plus the context and the memory of words in their listening vocabularies.
Apple II+/IIe/IIc/IIgs, $59.95.

WORLD CONFLICTS SERIES: AXIS OR ALLIES?
Focus Media
Social Sciences: History; World History
Grades 7-12
Students must make informed decisions in order to progress through this simulation; research geography and resources; become familiar with the conditions of the time and deal with the unexpected. Students choose sides – either commander of defending England attempting to capture German supplies or Axis leader attempting to control the continent after Poland's fall in 1939.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $99.

WORLD CONFLICTS SERIES: CASTLES AND KINGS
Focus Media
Social Sciences: History; World History
Grades 7-12
The year is 1066 in medieval England, William the conqueorer has invaded Britain and is fighting King Harold. Students choose sides. Students must make informed and thoughtful decisions in order to progress through this simulation. They research the geography and resources, become familiar with conditions of the time, and deal with the unexpected.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $99.

WORLD CONFLICTS SERIES: THE FIGHT FOR TEXAS
Focus Media
Social Sciences: History; United States History
Grades 7-12
Students must make informed and thoughtful decisions in order to progress through this simulation. They research the geography and resources, become familiar with conditions of the time, and deal with the unexpected. Covers 1836 with Mexico determined to retain Texas. Students gain a true appreciation of what fighting for independence really means.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $99.

WORLD CONFLICTS SERIES: THE WAR ON THE INDIANS
Focus Media
Social Sciences: History; United States History
Grades 7-12
Students must make informed and thoughtful decisions in order to progress through this simulation. They research the geography and resources, become familiar with conditions of the time, and deal with the unexpected. Students choose either the U.S. Cavalry or Native Americans in order to understand the impact this war had on both sides.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $99.

WORLD CONFLICTS SERIES: THE WAR IN THE PACIFIC
Focus Media
Social Sciences: History; World History
Grades 7-12
Students must make informed decisions in order to progress through this simulation. They research geography and resources, become familiar with conditions of time, and deal with the unexpected. They choose sides, Japanese or Allies, in an attempt to maintain control of oil supplies, as well as a majority of ports, and more.
Apple II+/IIe/IIc/IIgs, IBM PC and compatibles, $99.

A WRINKLE IN TIME
Sunburst Communications
Reading: Comprehension Skills; Vocabulary
Grades 4-8
This adventure story, presented in an interactive format, encourages students to place appropriate vocabulary words in sentences and remember main ideas and specific details in the proper sequence.
Apple II+/IIe/IIc/IIgs, Commodore 64/128, $65.

THE YOUNG LEARNERS SYSTEM
Focus Media
Early Learning and Preschool
Grades K-2
Promote reading and math readiness for young children (with or without special needs). Integrated learning approach that combines stories, discussions, song, and art projects with computer-based learning. Explores abstract and symbolic thinking. Materials are picture- and/or color-coded to allow nonreaders to select or change activities alone. Power Pad required.
Apple II+/IIe/IIc/IIgs, $249.95; IBM PC and compatibles, $234.95. ❑

continued from front page

to use this technology in public kiosks. Where does this leave the educational user? Obviously schools will need to be hooked up to some well-endowed regional or national provider. With multimedia about to take off, we recall with even more regret the now apparently moribund project of the Educational Utility. Without some such system, schools simply don't have the resources to make use of any but the clunkiest and least interactive multimedia.

☛ *Newsbytes* was told that Intel got the leading vendors to agree on its new compression algorithm by "Diplomacy, and invisible royalties." Unfortunately, the algorithm will not work for broadcast-quality applications.

> (With current multimedia likely to be blown away later in this decade by the arrival of digital television, buyers even for leading-edge school systems will be reluctant to sink *el mucho dinero* into early multimedia technology likely to seem outmoded, not to say primitive, by the end of the decade. On the other hand, this has been the trouble all along with buying electronics in the computer age: the rate of advance has been so rapid, that if you had kept putting off purchases until some plateau had been reached, you'd still be using pencils and composition books. And maybe you are.)

☛ His nibs Bill Gates remarked in *his* keynote address for the whole big show, that the taxi driver who had just dropped him off had pointed out a few problems he was having with Windows 3.1. (He snobbishly wondered what the taxi driver could possibly use it for; we'd like to know what Gates was doing riding in a taxi). He (Gates) predicted we'll soon see products with specialized, limited versions of Windows, such as communications devices. He also talked about the changes in computer supply and installation. He cited a need for what he called third-party "Solution Providers" who are skilled in particular user areas and can advise on, install, and maintain systems. These would range from one-man specialists to large companies, who would have a special relationship with users, and who would be crucial to the advancement of the industry.

> (By the way, Hugh Roome, publisher of *Home Office Computing*, writes in an editorial on computers and education this month: "...here is also the prospect of a vast opportunity for small businesses that can guide school technology.")

Gates also said that while software programs must become "leaner," there will still be great opportunity to provide truckloads of extra features, delivered separately by CD-ROM or online.

☛ **Awards Galore:** Gateway 2000, the South Dakota direct seller, won six of the eight Computer Shopper Best Buy Awards for Systems, determined from a survey of *Computer Shopper* readers. Other systems winners were Standard Computer for their Windows Workstations, and Dell Computer for Complete Network Systems. Fast Micro bagged the Best Overall Software Vendor trophy, and Midwest Micro claimed the Best Overall Hardware Vendor honors.

IBM's OS/2 2.0 advanced operating system received two awards. *PC/Computing* named OS/2 2.0 co-winner of the operating system/environment prize in its annual Most Valuable Products ceremony. In selecting OS/2 2.0 for this honor, the editors of *PC/Computing* said, "this is the operating system Windows 3.1 should have been."

OS/2 2.0 is an advanced 32-bit operating system that supports DOS, Windows and OS/2 applications. It offers true multitasking, allowing many programs to run at once.

> (However, some points of extreme caution for any of us lowly ***non***-high-powered-psycho-postyuppie-state-of-the-art users who might be drooling for a true multitasking system which lists at only $149: 1) OS/2 is said to be infested with bugs; 2) it takes up a whopping 20MB of disk space; 3) it is a sluggard even on rigs with a dizzying ***8MB*** of RAM. In short: Forget about it for now.)

The radical design of IBM's nameless new desktop rig received the Best System laurels presented by *BYTE Magazine* and The Interface Group. The machine has an "energy efficient and flexible space-saving" design in a 12" x 12" x 2½" package weighing four pounds. With a 10" color LCD display, it uses a mere 20% of the energy used by a PC. It runs a 486 chip as fast as 50 MHz. (Isn't this what Captain Picard uses?)

☛ **New Products:** Kubik Technologies showed off a "Jukebox" CD-ROM player which can hold 240 discs. The company says the unit can be used for

continued on following page

The top ten best-selling educational software titles last month: 1) *New Math Blaster Plus*, Davidson; 2) *Where in the USA is Carmen SanDiego?*, Broderbund; 3) *Reader Rabbit 2*, The Learning Company; 4) *PC Globe* (the leader with seventeen weeks on the charts), Broderbund; 5) *The Oregon Trail*, MECC; 6) *Where in the World is Carmen Sandiego?*, Broderbund; 7) *Super Solvers Treasure Mountain* (first month on the charts), The Learning Company; 8) *Mavis Beacon Teaches Typing*, Software Toolworks; 9) *The Secret Island of Dr. Quandary* (first month on the charts), MECC; and 10) *Bodyworks*, Software Marketing.

medical-image storage and retrieval, library reference CD-ROMs, library microfiche replacement, automated multimedia, and map systems. Four CD-ROM drives allow disc access in under 10 seconds. The company said the unit is designed for unattended operation and offers fault detection and self correction. It ain't cheap: the unit with four drives is priced at $20,000 while the single-drive rig is $8,000. Contact: Karen Johnson, Kubik Technologies, tel 604 273-0400, fax 604 273-7237.

☛ And last and least, WordPerfect Corporation announced its first-ever television advertising campaign, premiering three 60-second commercials in support of the company's "Beyond Words" campaign, also introduced at Comdex.

The commercials will show ineffective, inept, and backward ways of doing business (they were not, however, filmed at Sterling Harbor Press), and then illustrate the difference WordPerfect technology can make.

The commercials will begin to air nationwide early in 1993. Perhaps your school board will be watching. ❑

Infant IBM PC Co. Looks to Build Market Share

"We're doing everything we know to regain market share," pronounced Robert Corrigan, president of the newly established IBM Personal Computer Company. This was during a press briefing at Comdex which focused on IBM's recent attempts to regain its feet in the savage PC marketplace.

According to the eager Corrigan, IBM was knocked for a loop in the 80s by fierce competition from the clonemasters, but the corporation is struggling upright again with the PC Company it split off in September during the corporate reorganization.

Entries in the product line so far: the PS/1, for home use; a revamped PS/2, for big business; the ThinkPad pen computer; the ValuePoint, a generic PC for peasants; and the new Model 85 just announced, with a three-year warranty.

Corrigan explained that IBM is diversifying its PC line this way from a belated recognition that the PC marketplace draws many different kinds of people, each with its own needs. "In the past, IBM assumed that everyone wanted Cadillacs, without realizing that some people want Chevrolets instead." (*Technosprite*: You mean, instead of a Cadillac with a Volkswagen engine.)

Each of the new lines is managed by a separate team, to provide the advantages of a small vendor while retaining the resources of the mighty parent company. The teams are further divided into separate units for different areas of the globe.

The brand-team concept is enabling PC Company to respond more flexibly to market changes, Corrigan explained. As much authority as possible is being delegated to the teams, enabling them to take action quickly without having to go through multiple levels in the corporate hierarchy. School buyers may hope this will prove to be good news. ❑

Hello, Mr. Chips

Educators waiting for no-brainer computers may yet be rewarded for their procrastination. Computer systems you can talk to have been here for some time; and now prices for the voice-recognition peripherals are getting down to what will be considered affordable even in these budget-concious times. In fact, IBM this month unveiled three products to enable its computers to respond to spoken commands, including two that will run on PCs and a third for workstations. Meanwhile Apple is rumored to be working on an advanced system.

Industry experts are predicting a proliferation of computer voice-recognition applications within the next two years, some of which will replace workers, perhaps even teachers. Some of the uses:

- The U.S. Postal Service, long a symbol of technological sloth, now has people reading aloud the ZIP codes on mail which can't be machine sorted, and the voice-recognition technology does the rest.
- A third or more of long-distance phone operators will be replaced by computers that can recognize phrases such as "person-to-person" as quickly as a human, and will never become snippy.
- Quality-control inspectors and other tasks where one must communicate while hands are busy.
- Stockbrokers making trades, doctors filling out medical reports, lawyers adding boilerplate to contracts, all will find voice recognition faster and more accurate than keypunching.
- The technology will be used in pay phones and automatic teller machines to speed transactions and provide security; someday, one's "voice-print" will foil thievery completely.

The market is growing rapidly—40% a year—and as systems learn to handle ever larger vocabularies, growth will be even faster. Leaders in the field include: Dragon Systems (Newton, Massachusetts), Verbex Voice Systems (Edison, New Jersey), and Voice Control Systems (Dallas, Texas).

Disney Releases Reading Software with Still More of Mickey Mouse

Walt Disney Computer Software has entered the elementary-school level of children's software with the release of *Follow The Reader*, a reading program for children aged 5-8. Now shipping for DOS computers, *Follow The Reader* has a "no wrong answer" approach and lists at $49.95.

In this sequel to the best-selling *Mickey's ABC's*, children enter an interactive story book featuring the ubiquitous and increasingly irritating rodent and his colorful friends. With this talking software adventure (a supported sound device is required for speech), children are meant to develop and sharpen their reading skills as they create stories, print them out, and read along.

Children build their own stories by deciding what Mickey will do from sunrise to nightfall: Call Goofy on the phone, scarf a pizza, and so on. Video action follows the created story. ❑

Multimedia *continued from page one*

Tomorrow's multimedia machines will feature advanced data compression for high-quality video, faster processors, and cheaper and larger mass storage.

Workstation vendors are trying to deliver low-cost, high-performance machines to compete with microcomputer vendors, while Microsoft and Apple increasingly integrate multimedia capabilities into their systems software. Video products will expand from 4% of the total market in 1992 to more than 20% of a much larger market by 1999.

The multimedia market has until now disappointed early predictions of rapid consumer-market success. Consumer applications have been slow to emerge and are still too costly for widespread adoption. Most consumer playback systems entering the market in 1992, for example, were still too high-priced to stimulate dramatic growth. So far, corporate users and educators have employed multimedia mainly for training and presentations. Interactive multimedia-based courses have enhanced training in corporations and schools, and multimedia tools have transformed the nature of many business presentations.

Multimedia is a flood the waves of which will soon begin to lap at educational shores. But will it really go any further in the near future? *EPIEgram* believes that before multimedia can have any impact in education, manufacturers must resist rushing to the market with every new whiz-bang toy, and work much harder at flexible, yet easy-to-use systems, with compatible environments and peripherals. The situation so far has been exactly the reverse; but at this fall's Comdex (see accompanying story) we saw harbingers of major changes ahead.

(Market Intelligence is an international high-technology research firm specializing in micro computing and information technologies. All Market Intelligence reports are based on extensive interviews with marketing and technical experts from selected companies in each market segment. Primary research is validated by thorough analysis of available secondary research.)

New CD-ROMs

Music and Everything

Microsoft Musical Instruments is a CD-ROM disc which lets the user hear more than 1,500 sound samples – about ten hours altogether. Microsoft, which published the best-selling *Microsoft Bookshelf*, a reference work for writers, has also announced the *Multimedia Encylopedia*, which it describes as the "first multimedia encyclopedia designed on a computer to run on a computer." The *Encyclopedia* will contain 21,000 articles, 6,500 audio pieces—seven hours of sound—, 100 animations, 800 color maps, 7,000 photographs, and a 20-foot historical timeline.

Venus

Fourteen more Magellan CD-ROMs (volumes 53 through 66) have now been released by NASA's Magellan project. A total of 77 Magellan CD-ROMs are now available: 66 CD-ROMs containing radar images, and 11 CD-ROMs containing altimetry data. Volumes 1 through 52 contain the radar images taken by the Magellan spacecraft during Cycle 1, the first 8-month mapping of the planet Venus. Volumes 53 through 66 are the first release of the Cycle 2 radar data.

The CD-ROMs can be obtained from the National Space Science Data Center at the Goddard Space Flight Center. The price is $20 for the first CD-ROM, and $6 for any additional CD-ROM in the same order. However, "teachers who are unable to pay may be helped on a case by case basis, and/or as resources permit."

NSSDC also provides the following software to display the images: IMDISP (IBM PC); Browser, Pixel Pusher, True Color (Macintosh).

Write the National Space Science Data Center, Goddard Space Flight Center, Greenbelt, Maryland 20771. Telephone 301 286-6695. Internet Email address: request@nssdca.gsfc.nasa.gov.

Cosy Minions of Apple

Apple personal computers and the Apple LaserWriter printers received the highest marks in overall customer satisfaction by business users, according to two new J. D. Power and Associates surveys. Users were asked to grade their personal computer by five factors: ease of use, storage capacity, speed of operation, quietness and repair service. *(Technosprite:* On the other hand, Apple users in the business world tend to be florid designer/layout types, as well as people who if they were comfortable with *real* computers wouldn't have bought an Apple in the first place. So this survey is a little like asking artists if they're satisfied with *paint*, or five-year-olds how they like their parents.)

Less Angst for You

Rumor has it that it's no longer necessary to: 1) Batten down the hard disk before moving your computer. Most hard disks today automatically park their heads when not in operation. Moreover, all late-model hard disks use rock-hard metallic media, not the squishy ferrous-oxide surfaces that could be carved up by a bouncing head. 2) Keep your PC dust-free. Most of today's systems are robust enough to remain unharmed by the onslaughts of even the most savage dust bunnies.

STATS

SAT Scores Better

Incurable optimists will be heartened by the announcement that average Verbal SAT scores improved by 1% this year and Math scores by 2%. Students from urban and rural areas, however, lag behind those from suburbs and small cities; and a warning label needs to be attached which would point out that "the test-taking population represents a self-selected pool of college-bound students, not representative of all high school seniors." (Meanwhile, *Harper's* Index reports that the average SAT score has declined by 49% since 1970, while the average spending per pupil in public school has increased by 427% during the same period.)

Math Still Dismal

The bad news is that only about one in ten high school seniors have sufficient math skills to begin the study of college-level calculus (according to the American College Testing Program) and one in four will need remedial math. The good news is that the figure (11%) has remained stable for four years so at least the level of math skills doesn't appear to be getting any worse.

High-School Grads

The Education Department reports in a national study of high-school dropout rates of 16-to-24 year-olds, that only 74% of students have completed high school by age 19, but 86% finish by age 22.

From 1972 to 1992 the completion rate for white students rose from 85 to 90%, for black students from 74 to 81%, and for Hispanic students from 55 to 61%.

Older, Not Better

Though the majority of fourth graders say they visit the library at least weekly or monthly, only 12% of twelfth graders do so. Most twelfth graders visit the library no more often than yearly, often never, according to a report from the NAEP.

Ec Stats Unknown

Fewer than four in ten 12th graders, college seniors, and members of the general public have any real grasp of economics – this according to a survey by the Gallup Organization, which found that only 3% knew the rate of inflation, fewer than 25% could peg the expected $400 billion dollar deficit, and awareness of unemployment figures was not much better.

This however may be a little like saying that because Nolan Ryan doesn't know George Brett's current batting average, he has no real grasp of baseball.

For more info: National Council on Economic Education, 432 Park Avenue South, New York, New York 10016.

Schools Costly

State governments lavished more than a third (35.4%) of their general expenditures on education in 1991. This makes education the largest item in state budgets, and compares with 8.3% for health and hospitals, and 22.4% for public welfare. Some $116 billion of the total spent for education went to precollege schools.

Meanwhile, state revenues from sales, income, and license taxes have decreased. ❑

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ADVICE! from Educators to Big Bill and Friends

*(**Editor's note:** We asked educators around the country what they would say to Bill Clinton and Al Gore about education if they managed to get 60 seconds of their time. The people we talked with seemed even more ready for change than the electorate and more than a few said: help teachers understand technology so they will use it in their classroom.)*

California. Janis Kessler, Director of Instructional Resources, Bakersfield City School District, wants a fair shake for all students and thinks she knows where some money can be found: "It is totally wrong for children in some areas to be provided a better education than children in less affluent areas. I want leadership [at a national level] for equitable funding," and to reevaluate whether expensive federal programs such as school busing and other controls are still required.

Joan Blades, who's with Berkeley Systems in Berkeley, points to her company's great success with disability software; but despairs at having to justify creating products for a school market that accepts technology at such a slow pace. She is in favor of vouchers, "But a voucher big enough to provide a complete annual cost, as high as $4,500." Also a requirement that schools have to accept nonpaying students so there is equity.

Also in California, we spoke with Don Means, a software publisher out of San Rafael, who has taken a keen interest in education, and who has an updated version of hammering swords into plowshares: "The defense industry understands systems and is very skilled at training. Teachers need to be trained and quickly. The defense

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HELP! Hypermedia Enhanced Lesson Planning

by
Frank M. Betts, Ed.D., Director, and
Vicki E. Hancock, Ph.D., Assistant Director,
ASCD
Curriculum/Technology Resource Center

Computer guru Ted Nelson is believed to have coined the term "hypertext" to describe text that can be gathered and accessed according to the reader's needs and interests. Traditional text is organized in a linear sequence according to the author's scheme, and read from the first page to the last, from top to bottom, left to right. Hypertext computer software, on the other hand, allows readers to pre-define their interests so they can hop around text, following ideas in a nonlinear fashion. Chunks of text can be linked or gathered into groups for retrieval, even when they are widely dispersed throughout the document. Typically, these chunks contain at least a sentence, more likely a short paragraph, with enough information to make them individually useful.

What Is Hypermedia?

The next step beyond hypertext is Hypermedia. Hypermedia is information from multiple sources—sound, text, still and full-motion im-

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SCISS/TESS Update
Begins on Page 5

The Latest Software
for Teachers
and Administrators
from *TESS*!

Five Big Pages Filled to Burstin' with
Program Data and Descriptions

Editorial

Choice Cuts

The editorial in the November *EPIEgram* ("Can Any Human Institution Reform Itself?") has kicked up a bit of a response. "Paranoid" said one writer, which surprised me, for I thought I was complimenting all users of TESS and members of the States Consortium for their forward thinking and contributions to change in education.

Perhaps I did not write carefully enough. I thought the editorial a reasoned comment on the human condition, not an attack on educators. I made the mild observation that those in power tend to resist change – either because they don't recognize the need for it, can't figure out how to do it, or cling to their percs and power while the structure disintegrates around them.

This is not a terribly original or sophisticated commment; it's what happens with any human institution. What better example of hanging on to percs than Britain's Royal Family, who live royally as the Empire sinks, don't pay taxes, and whose prime function seems to be to sell newspapers. Here at home, our corporate royalty such as General Motors and IBM, to pick just two examples, are losing billions while playing catch-up because the market changed and they didn't.

To pick an entirely different environment, the head of United Way was bounced because he had forgotten his job was to help poor people, not feather his nest. And how has education fared? Well, it's an extreme example, perhaps, but an education administrator in New York State made headlines recently because his retirement package will be close to $1 million, and his pension is expected to be $300,000 per year.

In the best American tradition, we all try to do the best we can with what's available to us, whether it's corporate America, welfare, S&Ls, or education. Why should educators be any more self-sacrificing than doctors or lawyers or editors of newsletters? (Perhaps my problem is not paranoia, as the writer suggested, but envy – I haven't been clever enough to retire on $300,000 a year.)

My point is a simple one: we've known for 25 years that education was in trouble (e.g. "Nation at Risk"); we've thrown billions at the problem, and by most standards of measurement it is difficult to see where the money changed anything.

Who will bring the needed change? History would suggest that those in power will not bend much until the peasants revolt and storm the ramparts, pitchforks at the ready. Don't look now, but that's about to happen.

The technology which is rapidly changing our world has yet to reach the classroom to any considerable extent. There are a meagre 3.5 million computers for 45 million students; and having a computer isn't worth much anyway unless you have the right software to go with it. It's there; educators just have to pick it up.

The educational software industry is immensely creative, something EPIE Institute recognized more than 10 years ago when it created The Educational Software Selector (TESS). It had—and has—a simple premise: to put all known information about software into one database; and a single objective: to make that database available (through the States Consortium) to every teacher.

The number of educational software programs is immense – more than 12,000 in all, programs that can fit into every class, every subject, every curriculum. However, far from embracing this cornucopia of software, educators have largely ignored it. And the job of getting TESS to teachers and decision makers has been an uphill battle. Fortunately, the Consortium is beginning to roll. Tennessee and Chicago have just come in; three more states are close to joining and others are beginning to understand that choosing software is not so difficult when you have the right tools.

Which brings me to my final point. Change appears difficult because it means moving from the known to the unknown. It means overcoming inertia; it means taking a chance. How to begin? As the Chinese proverb says: "The longest journey begins with a single step." It's a cliché but, like most clichés, admirably accurate.

Take a step. Buy a computer. Learn by doing. Get your students to help. Expect to make mistakes. And be intelligent about your search for software. Look to TESS and the States Consortium for Improving Software Selection. Call us. Fax us. Write us. We'll help you get a copy of *The Latest and Best of TESS*, 2,500 of the latest and the best educational software programs. And look in the blue pages of *EPIEgram* for more of the newest releases, up to a hundred in every issue.

The times are changing and the rate of change is accelerating. As Lee Iococca likes to say: "Lead, follow, or get out of the way."

Earl L. Fultz
Editor & Publisher

In the NEWS

Homework

Maine West High School in Des Plaines, Illinois, has a hotline to give students their homework assignments. Students call 708 827-PLAN from home, then punch a three-digit code for the teacher whose homework they want to hear about. The recorded voice of the teacher then talks about it. Thus, students who are out sick or malingering can keep up with their classwork, and others who can't find or did not write down the assignment can be rescued, and still others who say the teacher does not give enough information have less of a beef.

Some teachers put the assignments for the whole week on tape, and eager-beaver scholars telephone to get ahead in their work or simply plan their work for the week. To encourage calls a teacher may include the answer to a test question or provide an extra-credit assignment not mentioned in class. The hotline also is used by martinet parents to check up on their children's claims that they have been given no homework.

The school has 1,600 students. On one day alone the hotline received 1,464 calls.

Principal James Coburn and teachers said that about 90% of students finish their homework this year, compared with about 70% the year before, when no system was in place. So now it's in like flint.

Very Brief School Videos Wanted by CNN

"Because reporting has expanded beyond the written word with portable television equipment adding sight and sound to what we know, *CNN Newsroom* School Videos offers students and teachers the opportunity to learn the skills required for the next century. We welcome you to the challenge and we will be delighted to show a worldwide audience the best examples of video storytelling produced by the students who watch CNN." Thus speaketh Brian Todd and Cassandra Henderson of CNN.

Participation. Limited to schools enrolled for licensed use of CNN Newsroom. To enroll your school, call 800 244-6219.

Telecast. Generally, reports submitted by participating schools will be featured in the "Our World" segment of *CNN Newsroom*. The program producers are under no obligation to telecast any of the reports submitted. Each submission will be evaluated according to the standards of professional journalism and decisions to air reports will be based solely on the judgment of the program producers.

Format. All submissions must be made on 3/4-inch tape or 1/2-inch VHS with no story to exceed two minutes, thirty seconds in duration. (*Technosprite*: So they'll learn to be as shallow and facile as possible.) Each report must be tagged with "Reporting for *CNN Newsroom*, I'm <name of student> in <name of city>, <name of state>."

Guidelines for Students. Tell the story. If there are varying points of view, give all sides a fair and impartial presentation; let all sides have a chance to speak the pros and cons of the issue. (*Technosprite*: In two minutes, thirty seconds.)

Let the pictures "speak" the story; don't over-narrate what viewers can plainly see for themselves in the video, the fallacy of describing your own pictures.

Write short and precise sentences. Let the story 'breathe' and flow but keep it to a maximum length of two and one half minutes (*Technosprite*: At all costs.).

Write visually. Let the narration give direction to the eyes and ears of the viewers as they follow the presentation of the story. Make good use of natural and ambient sound to take the audience to your story and make them feel a part of it.

Use no music unless it is live music necessary to the story such as a passing marching band during a report on school athletics.

All reporter standups and bridges should be brief and not used to open a story.

Tell the truth. It is the noble challenge of professional journalism. Understanding depends on correct and factual information.

How to Submit Tapes. Send tapes to: Turner Educational Services, One CNN Center, 100 International Boulevard, Dock 5, Atlanta, Georgia 30348. For more information, call 800 344-6219.

Family Devalued

In 1990, only 26% of children lived in a home with a traditional breadwinner and a stay-at-home parent. More than 60% of women with children under 6 years of age were in the workforce and 64% of all children did not have any parent at home full time. In five states (Arizona, California, New Mexico, New York, and Texas), more than 20% of school-age children spoke a language other than English at home. Some 11% of 16- to 19-year-olds were not enrolled in school and were not high-school graduates. More than 20% of Hispanic students were dropouts. These findings are contained in a report from the Center for the Study of Social Policy.

Parents Uninvolved

Parental involvement may be the most important factor in determining a child's success in school, but many parents either don't know this or don't care. Only 52% of parents of eighth-graders contacted their child's school about academic performance in a recent year. Fewer than 35% contacted the schools about academic programs. Only 32% of parents belonged to the PTA, and 19% served as school volunteers. Parents of private-school students were more likely to be in touch with their children's schools than parents of public-school children. In private schools, more than half of the parents belonged to PTAs and attended meetings; more than 53% of Catholic-school parents volunteered at school.

Tests Flunk

Standardized tests and textbook tests emphasize low-level thinking, and exert a profound negative influence on classroom teaching, according to researchers at Boston College. Among their findings: 95% of items on math tests required recall of information, computation, and the use of formulas and algorithms in routine problems, while only 5% measured higher-level skills; 75% of items on science standardized tests

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and 90% of those in science textbooks tested students' recall of facts and routine application. Half or more of math teachers said that what they taught was influenced by the content of standardized math tests. In 'minority' classrooms, 75% of teachers said they were under pressure to raise test scores.

Yob Bags Second Do It Grant from Sneaker Kings

Grand Rapids, Michigan. Ron Yob, a teacher in Westbridge Academy's Native American Learning Center, is one of 20 teachers across the country to receive a Just Do It Teachers' Grant from the National Foundation for the Improvement of Education and NIKE, the upscale sneaker kings. The grant of $6,500 will fund Yob's Drop In/Not Out Program, a stay-in-school initiative.

Just Do It Teachers' Grants are awarded to educators who design programs that motivate students to stay in school and achieve academic success. This year's grants, ranging from $3,000 to $18,000, are funding teachers in 17 states. Yob is a two-time winner; he received a grant of $10,236 in 1991.

Family responsibilities and ties in surrounding cities frequently remove the school's Native American students from Grand Rapids for weeks at a time. When they return, overwhelmed with catch-up work or bored and frustrated, many drop out of school, joining the melancholy 80% of Native American students who spit the bit nationwide. The Drop In/Not Out program provides a culturally-sensitive learning environment that's challenging, supportive, and keeps 'em in school.

Drop In/Not Out allows Yob to create an individualized, computerized curriculum for each of the 35 seventh- through 12th-grade students attending the Center. "The students vary in their academic achievement from third-grade reading and math levels to post-high school. Because their cultural and family obligations require them to come and go, we needed a way to keep track of where they are in their studies. That way, when they return they can begin where they left off," Yob said.

Yob divides the students' studies into units that allow them to earn credits as each unit is completed, and uses a computer to keep track of their progress . Technology also helps Yob effectively teach individual lessons to all of his students.

Yob is using his second grant to acquire additional computers and software packages. He is also using the new technology to record important personal data for the students—birth certificates, travel records, social security numbers—, in place of documents which are often lost as the students move back and forth between cities.

You can call Ron Yob at the Native American Learning Center, 616 771-3242.

Citizen Coors

The Adolph Coors Company, purveyors of potables brewed with water from Rocky Mountain streams, believes the one out of five American women who can't read should be encouraged to learn. Ten million copies of an eight-page brochure, "Why These Women Are Outraged," will be inserted in Hearst Magazines (*Good Housekeeping*, *Cosmopolitan*, *Country Living*, and *Redbook*). Hearst's Avon Books will carry ads promoting literacy. Coors also maintains a strong literacy program for its employees.

Can't Afford CD-ROM? Try Barnyard

Pupils at New York City's Public School 146, on East 106th Street at First Avenue, spent an entire day this fall learning about animules.

In the morning, the children chilled with farm animals brought to their schoolyard from an upstate farm. Later, students in kindergarten through fifth grade read or discussed books about animals.

Both the farm-animal exhibit and the classroom-reading exercise were sponsored by the F. W. Woolworth Company as a part of its continuing effort to encourage childrens' appreciation of, and compassion for animals.

The farm animals, including ponies, pigs, sheep, goats, rabbits, and chickens, were trucked to the school from Brewster, New York, by the Green Chimneys Children's Services Agency, a residential treatment center for children, as part of its educational extension program irritatingly called "Farm on the Moo-ve." The P.S. 146 exhibit was the twentieth at a New York City school under Woolworth auspices since the start of the program last April.

Woolworth has also been working with the American Humane Education Society of Boston to bring to New York City schools the Society's nationwide educational campaign, Operation Outreach USA. The Operation Outreach program works to develop reading skills through classroom studies of books about animals, and distributes free copies of these books to participating students. A key objective of the program is to have children learn compassion for animals by reading about them.

The reading and book distribution at P.S. 146 began the second series of such programs planned for New York City elementary schools. This series will extend through the end of the school year in the spring of 1993 and is expected to reach 127 schools. The first series of classes was held in 79 New York City public schools last May and June. In advance of each series, Woolworth funds workshops for teachers who volunteer to give added instruction for students in the program.

The reading and book distribution classes last spring were attended by about 3,000 pupils, each of whom received a free book about animals. Among the titles distributed were *Black Beauty* by Anna Sewell, *William's Story* by Debra Duel, *Lobo the Wolf* by Ernest T. Seton, and *Beautiful Joe* by Marshall Saunders.

Other books to be distributed in the current series include: for kindergarten, *If A Seahorse Wore a Saddle*, by Dr. Mary Jane Flynn; first grade, *The Lost and Found Puppy*, also by Dr. Flynn; second grade, *William's Story*; third grade, *Beautiful Joe*; fourth grade, *Black Beauty*; and fifth grade, *Cousin Charlie the Crow*, by Marshall Houts.

For more information call Frances E. Trachter at F. W. Woolworth, 212 553-2394. ❑

THE STATES' CONSORTIUM FOR IMPROVING SOFTWARE SELECTION
SCISS
TESS
THE EDUCATIONAL SOFTWARE SELECTOR
UPDATE

New TESS Update:

25,000 Changes and a Lot of Keystrokes

Consortium members get ready! The next TESS update is on its way, bringing more than 25,000 individual revisions involving product information and supplier data.

With 10,797 educational software program entries, including more than 1,700 for the Macintosh, this winter '93 update offers users even more information than ever before. The product description field in this version has been expanded to enable TESS to provide more of the information you require to select and use software that best meets your instructional and administrative needs. About 25% of the product-description entries in TESS have been expanded for this update.

We've also increased the list of review sources, adding 25 new reviewers to the database. Now among the existing list of 40 review sources are these computing magazines: *MacWorld*, *Mac User*, *PC World*, *PC Magazine*, and *Amiga World*. Also added to the list are such educational magazines and journals as *School Science and Mathematics*, and *Computers in Education*, among others. TESS grew by more than 400 new review citations in this winter update.

Other enchancements include an increase in information supplied by producers relating to networkable versions of their software products, site-licensing arrangements, lab-pack availability, and back-up provisions. As part of their intense effort to gather product information from suppliers, the TESS staff tripled the number of suppliers for whom this kind of information is now available.

Volunteer State Enlists for TESS

TESS has just had its debut in Tennessee and was greeted with enthusiasm. The Tennessee Office of Educational Technology demonstrated TESS's capabilities before representatives from six educational service centers and everyone received a copy of *The Latest and Best of TESS* with the electronic version to follow shortly.

One of the prime objectives of the meeting—held in mid-December—was to discuss plans for the roll-out in early spring. Gary Calfee, Director of the Office of Technology, expects TESS to be in place throughout the state by fall. However, many schools will be using TESS well before.

While the debut went well, some problems remain to be solved. For example, only two of the educational service centers currently have directors of technology. Also, plans have to be worked out to fund TESS for public libraries and institutions of higher learning since the budget available to the Office of Educational Technology won't stretch that far.

While TESS is easy to use, like all technology it can be intimidating to a beginner. For that reason, Tennessee—having profited from the example of Texas—is planning extensive teacher training so the classroom teacher can take part in software decision-making.

Reference Tools on CD-ROM

by

Carolyn Horne

Carolyn Horne is a recent MLS graduate from Long Island University's Palmer School of Library and Information Science.

If your school has enough money to buy a CD-ROM player, or around $650, a librarian will find it is well worth it to beg for or borrow the money to install at least one in your media center or library. The benefits of having a CD-ROM player will quickly make up for the initial cost when students line up, anxious to use the computer to do research for term papers or book reports that are due tomorrow. When they discover it takes minutes instead of hours to find the right reference, abstract, or even the complete article, they will keep coming back. And when the librarian concludes that the CD-ROM player takes up far less space than shelves of expensive encyclopedias, indexes, and out-of-date reference materials, there will be more space for more current printed materials or CD-ROMs. Searching electronically helps students quickly improve spelling and reasoning skills. Instant results motivate them to take further action and risk making mistakes. Maps, pictures, music, even correct pronunciation involve and entertain.

The most basic reference tools are available on CD-ROM: dictionaries, thesauri, encyclopedias, almanacs, atlases, directories, magazines, and newspapers. Face it: even entire libraries will be on CD-ROM eventually. Books, if not on CD, will be available online directly from publishers. Publishers are already providing custom-designed textbooks and other teaching tools, a result of mix-and-match electronic files requested by educators.

Where are the first places students look for information on a topic? Magazines and newspapers are most up to date, but for

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depth, encyclopedias and books are the best source. *Reader's Guide to Periodical Literature*, *Grolier's Electronic Encyclopedia*, *Compton's Multimedia Encyclopedia*, *American Heritage Dictionary*, *Webster's Ninth New Dictionary*, *Oxford English Dictionary*, *Magazine Index*, *Rand-McNally Atlas*, *The World Almanac*, *Barlett's Quotations*, *Roget's Thesaurus*, *The Chicago Manual of Style*, *Facts on File* are among hundreds of classic resources available. College guides such as Barron's *Profiles of American Colleges* and *Peterson's College Database* are available on CD-ROM as well. Other popular resources such as *Books in Print*, ERIC, even the Government Printing Office Monthly Catalog, are available on CD-ROM.

If you can't afford to buy a CD-ROM player, ask your most persistent database publisher/salesperson to lend you one on a trial basis. Then subscribe to research materials on a semi-annual basis just to whet your appetite. Once students and teachers discover the ease of use, currency of the data, and the sheer fun of searching, subscribe to more frequent offerings, quarterly, even monthly. Soon, you and your students will be hooked. ❑

Software and Technology

Minuteman Missile Technology Used to Improve School Systems

Decision-support software technology first used by Boeing to "failsafe" Minuteman missiles is being marketed by Sage Analytics International to help schools identify problems and provide remedies in areas such as attendance, discipline, and performance. Based in Provo, Utah, Sage Analytics has conducted studies in almost 200 schools across the country, and has recently signed contracts with school systems in Chicago and Virginia. The company not only evaluates the learning environment, but also provides training for principals in decentralized management techniques.

To learn more, go right to the top: Jon Stephens, President and CEO, 801 374-8070.

Computers Create New Kind of Learning

A professor of literacy education at Ohio State University, who has been involved in Apple Computers' Classrooms of Tomorrow (ACOT), believes that standarized tests do not measure the true effectiveness of technology in the learning process.

Robert L. Tierney believes computers influence learning to a much greater degree than previously expected. "Just as reading and writing provide a society with ways to record, communicate and study ideas, so computer technology provides students with new ways of gathering ideas, formulating meanings and working with other students."

According to Professor Tierney, with the use of multimedia (dynamic rather than static), the students' approach to ideas is no longer linear and unidimensional. The result of using the new technology is that the students were able to pursue multiple lines of thought and entertain different perspectives, something difficult to do in traditional settings.

A problem, however, is that standardized tests don't show this expanded capability because conventional paper/pencil tests are not able to measure the advantages gained by students who use technology. "By the eleventh and twelfth grade," says Tierney, "their skills had transcended the classroom; all saw their expertise in terms of college or employment and some had already begun to use their skills to help family members or for their own profit."

Parts Suppliers Directory

The 1993 *Directory of Parts Suppliers*, which lists more than 300 vendors currently providing spare parts, components, whole units and systems, new and refurbished—in short, anything and everything—is now available from Coordinated Service, Inc. (510 486-0388) for $75. A bit pricey, but worth it if you can get away from dependence on a single source.

EDBUG Info

Anyone interested in barcode would do well to contact the EDucators' Barcode Users Group (EDBUG) (telephone 402 472-8685; fax 402 472-6234) at the University of Nebraska. The organization needs money and invites your tax-deductible contribution, which entitles you to a fairly hefty newsletter. The address: EDBUG Fund, UN Foundation. P. O. Box 82555, Lincoln, Nebraska 68501-2151.

Feedback on SONY Data Discman

The Discman is probably not for curling up with for a "good read" on a rainy Sunday afternoon – the small (3.5") liquid-crystal display is a bit like reading with a magnifying glass, but it is fast for tracking down info. This appears to have been recognized by SONY, since two of its first three offerings on the teensy-weensy discs are the *New Grolier Electronic Encyclopedia* and Passport's *World Travel Translator*. Other drawbacks include short battery life, a keypad for pixies, and a high price: $550. But all this will surely improve.

Grolier Multimedia Encyclopedia Supports Video for Windows

Grolier Electronic Publishing, the CD-ROM czars, have announced a version of their best-selling CD-ROM encyclopedia, the *New Grolier Multimedia Encyclopedia*, developed using Microsoft Video for Windows.

The Video for Windows technology allows motion video clips—of historical events, famous people in history, NASA missions, major sporting events, and so forth—to be added to electronic reference works.

Other new features include animated sequences of aircraft technology, weather, the human body, the solar system and more; the Timeline, which allows users to conduct a journey from prehistory to the present; the Knowledge Tree which can be used to explore broad categories before branching out to specific areas; thousands of pictures; more than 250 high-resolution color maps, including all regions of the world, all countries and all 50 U.S. states; and high-quality audio, including excerpts from famous speeches and musical compositions, as well as animal sounds, bird calls, and audio-supported video clips.

Starter Set

Want to move your child along on computers a bit faster than it looks like the school is going to do it? Check out *Tic, Tac, Type: A Child's Computer Writing Kit*. As an introduction to computers and word processing on just about any DOS computer, it is designed for children over eight but can serve well for adults, too. It even has a disk with a not-so-bad word-processing program. Written by Marta Partington, the price is right: $19.95. From SAMS of Carmel, Indiana, a division of Prentice Hall. It's not *WordPerfect*; but then, for most users, *WordPerfect* isn't *WordPerfect* either.

Good Deal on Newest Print Shop

Current owners of Broderbund's *New Print Shop* have until March 1, 1993, to get *The Print Shop Deluxe School Edition*, newest member of the *Print Shop* family, for half price: $54.95, compared to list of $109.95. *Print Shop* is used to create everything from bulletin-board signs to class calendars, certificates, bookmarks, newspapers, and banners. The *School Edition* of *Print Shop Deluxe*, for grades 2-12, contains a variety of reproducibles and some 40 activity plans spanning the major subject areas – language arts, social studies, mathematics and science.

Small World

Sparcom Corporation of Corvallis, Oregon, which points up the growing importance of the Northwest by noting that it is headquartered in the "Silicon Forest," is betting on handhelds or palmtops. Its recent software products—all for the HP 95LX—include the *Podium Pal*, an aid to speakers, and five of the world's more popular games (chess, checkers, backgammon, etc.) which can be engaged without closing your productive apps.

Arthur on CD-ROM

The second in Broderbund's Living Book series of CD-ROM programs features *Arthur's Teacher Trouble*. Based on the many Arthur books by Marc Brown, this newest in the well-received series from Broderbund (the first was *Just Grandma and Me*) is designed for K-3 students. A copy of the book is included in the package and both English and Spanish versions are included on the CD; students can switch back and forth with a keystroke. Cost: $59.95.

McGraw Hill & Grzimek

McGraw-Hill's CD-ROM version of the acclaimed five-volume *Grzimek's Encyclopedia of Mammals* is an impressive accomplishment. It features more than 3,500 illustrations, photographs and charts, and nearly 500 maps, as well as video and sound from the archives of the BBC natural history film library. There are authoritative essays on life and behavior of mammals by more than 200 leading international naturalists. A full glossary of terms is included. "Browser" windows allow new users to begin using it immediately, and all data can be printed or saved to disk.

The Multimedia Encyclopedia of Mammalian Biology requires an IBM compatible, 386SX/DX, 25MHz; SVGA color monitor and video card. It can be used on PC networks (up to 16 users) and lists for $995 ($1,250 for network version).

Feast for Lotus Eaters

Educational Technology Specialists (Edutech) has announced an agreement with Lotus Development Corporation to distribute the full academic line of Lotus products to education. The products will be available immediately through the Edutech evaluation program. In this formal software-review program, Edutech works directly with the decision-makers in education to evaluate software for use in the classroom, in research laboratories, and in campus-wide bundles.

Edutech will distribute the Lotus education product line through its network of resellers to colleges and universities as well as the 15,000 school districts throughout the United States.

Edutech will offer Lotus's full academic product line at education discounts of up to 80% off list. For example, *Lotus 1-2-3*, which lists for $495, will be available at $99.

Founded in 1987, Edutech is a distributor of commercial software to educational institutions.

Contacts: Marcel Mendoza of Edutech at 408 372-8100; or Bryan Simmons of Lotus at 617 693-1697.

Tenth Annual Software Awards from *Technology & Learning*

The editors of *Technology & Learning* have announced their tenth annual K-12 software awards. Of the 37 awards, six programs received Top Awards, 24 received standard Awards of Excellence, and seven were sequels to previous winners.

The Top Awards were:

Living Books: Just Grandma and Me, Broderbund Software.

Science 2000, Decision Development Corporation.

Columbus: Encounter, Discovery, and Beyond, EduQuest/IBM.

Illuminated Books and Manuscripts, EduQuest/IBM.

Microsoft Bookshelf for Windows, Microsoft.

MediaText, Wings for Learnings/Sunburst. ❑

The Latest of TESS

Programs
(Chiefly for the Macintosh)
for
Teachers and Administrators
from
Access to MacLang

Access PC
Insignia Solutions
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
A utility for managing MS-DOS files on the Macintosh computer. User can mount and view MS-DOS volumes just like Mac volumes.
Macintosh Plus, $99.95.

Address Book Plus 2.0
Power Up Software
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Organize and print names, addresses, telephone numbers, and other contact information. Produces an assortment of quality output, including InstaBooks, address-book pages, mailing labels, rotary-cards, and envelopes. Prints in popular formats such as Day-Runner, Day-Timer, Avery, and others, or in custom sizes. Dials phone numbers using Macintosh speaker or modem. Can transfer data to or from other applications. Includes a separate desk accessory for editing, adding, and dialing.
Macintosh Plus, $9.95.

AEC Information Manager
AEC Software
Administrative Software; General-Purpose Software; Database Systems
A project-oriented database which provides a project manager the means to automate, schedule, organize, and track correspondence, transmittals, suppliers and vendors, subcontractors, clients, equipment, proposals, and more. Designed to organize project information from start to finish. On-screen status and professional-looking reports can be created and printed out at any time. User-defined reports allow unlimited content options, and all fields can be searched and included in any order in any number of reports. In addition, program reports are dynamic: as data or times and dates change, so do the reports. Other program features include a project log, work calendar, submittal log, note pad (mini word processor), global alarms, and more.
Macintosh Plus, $173.75.

America Online Terminal Program
Quantum Computer Services
Comprehensive: Generalized Tool Programs; Telecommunications Tools
Provides a standard Macintosh interface for using the America Online public-access service. Features include automatic dial-up of telecom networks; offline mail composition and address book; flash mail, which provides automatic sign-on, send mail, and file downloading at specified times; and more.
Macintosh Plus.

ASK-IT for Tests and Tutorials
True BASIC
Comprehensive: Author Languages
Authoring program lets teachers create tests and interactive tutorials from the same master question files. The authoring program is as easy to use as a word processor or a free-form database. A "Reporter" program captures each user's test results and allows teachers to analyze their questions. Can be used with any subject. Included in each package is a "Tutor Engine" teachers can distribute with each of their interactive tutorial files which allows users to create or modify question files. Can be used for multiple choice, true/false, or fill-in-the-answer format. Can select questions by key work and subjects. Answer fields are provided for each answer option. Fields are also provided for reading references, hints, and notes. System 7 compatible. Keeps records.
Macintosh Plus, $99.95.

Authorware Professional
Authorware
Comprehensive: Generalized Tool Programs; Multi-Function Tools
Enables non-technical subject matter experts to build applications without scripting. Allows the incorporation of text, graphics, sound, animation, and video to create applications for learning and simulation. Enables ready linkage to external interfaces, databases, and networks.
Macintosh Plus, IBM PS/2.

A-V Online
Silver Platter Information
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
A complete database on CD-ROM disc of audiovisual materials from the National Information Center for Educational Media. Requires CD-ROM drive. Updated annually. Contact supplier for price.
Macintosh 512E.

Calendar Creator
Power Up Software
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Keeps calendars neat, accurate, and up-to-the minute. Merges separate lists of events into daily, two-day, weekly, two-week, monthly, six-week, and yearly calendars. Handles all events including appointments, birthdays, board meetings, and more. Enter recurring events, such as the first or third Wednesday of the month, and keep separate event lists for work, home, birthdays, and holidays. Users can update calendars easily by simply editing activities and printing again.
Macintosh Plus, $69.95.

CanOpener 2.0
Abbott Systems
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Provides user emergency access to all files. Allows user to browse any file and copy the contents (text and pictures) no matter what the format – without needing the creator application. For use in opening documents Mac cannot open, searching files to locate missing information, or recovering text from damaged documents.
Macintosh 512E, $79.

ClickPaste
Mainstay
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Provides a simple, convenient way to store and retrieve frequently used text, graphics, and other objects. With a keypress and a click of the mouse, users can save almost anything: text, any type of graphic, even *HyperCard* buttons and the script behind them. Program stores these objects in files and folders which can be reorganized through the Finder. Objects maintain the intelligence added in an application. For example, *PageMaker* text keeps its "window blind" form and size. To paste a saved object, users perform the same simple operation.
Macintosh Plus.

Commtact
Campagne Associates
Administrative Software: Financial Accounting
Advance donor and alumni management software designed for colleges, universities, and private schools. Stores detailed information on each donor/alumnus and has complete contribution tracking and reporting capabilities. Campagne Associates offers full services to implement Commtact, including training, ongoing support, and data conversions.
Macintosh Plus, $2,990.

Commtact ELS
Campagne Associates
Administrative Software: Financial Accounting
Entry-level donor and alumni management software designed for a small or new development office with a limited budget. Stores detailed information on each donor/alumnus and has complete contribution tracking and reporting capabilities. A development office can start small with Commtact/ELS and then upgrade to the more advanced Commtact. Campagne Associates offers full service to implement Commtact/ELS, including training, ongoing support, and data conversions.
Macintosh Plus, $795.

CSL Precis
Chancery Software
Administrative Software: Student Records; Multi-function Programs
A simplified student-information system designed for public and private schools with fewer than 75 students. The system is available in single or multi-user versions, and takes advantage of the Mac's graphic interface. The basic system includes "Student Demographics," "Discipline," "Attendance," "Gradebook," "Report Cards," "Query," and "ASCII Import/Export." Individual add-on modules are also available to enhance the system, including "Health and Immunization," "Library Cataloging and Circulation," "Report Manager," and "Activity Accounting." The fully-integrated database is protected by a multi-level password system. Network version available.
Macintosh Classic

DeltaGraph Professional
DeltaPoint
Comprehensive: Generalized Tool Programs; Multi-Function Tools
A comprehensive charting, graphics, and presentation tool. Provides 40 chart types, including business, text, scientific, and technical charts enhanced by drawing and slide-show presentation capabilities. Offers formatting options, custom chart templates, integrated drawing tools, and access to imported graphics and clip art.
Macintosh Plus, $99.

DocuComp II
Advanced Software
Comprehensive: Generalized Tool Programs; Word Processors
Compares any two documents and highlights all of the changes in seconds. Reports changes as small as an inserted comma and as major as a complete rearrangement of text. Changes can be seen 1) on a split screen which shows both documents at the same time; 2) in a printed composite (redlined) draft; 3) in a composite draft stored; and 4) in a summary report listing every change by page and line number. The most popular word-processing formats are supported, and the files being compared can be in dissimilar formats.
Macintosh 512E, $179.95.

Educational Budget Management System (EBMS)
Precision Computer Systems
Administrative Software: Financial Accounting; Budgets
Gives administrators the power to develop school-based program budgets quickly and accurately. Program plans are created for each operating division. When these program plans are grouped, they provide fund, location, function, program, and object budgets. Administrators can make budget changes easily and quickly. Districts and school budgets can be simulated for determining the best allocation of funds to each operational program.
Macintosh Plus, $998.

Educator Homecard
Intellimation
Comprehensive: Class Management Aids
An educator-developed program for *HyperCard* which includes three facilities: "Student Management" allows teachers to create their own student management system with stacks that help with everyday classroom organization; "Lesson Management" allows teachers to create and store lesson plans and includes a daily planner and a presentation tool to enhance specific lessons; and "Ideas" includes stacks of ideas and database templates to help manage day-to-day information.
Macintosh Plus, $29.

Fast Forms
Power Up Software
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Enables users to create, fill, print, and save custom office forms, from simple office memos to complex invoices and order forms, quickly and easily. Makes it easy to design and fill out forms, including pre-printed, instantly and accurately. Saves, edits, searches, imports, and exports data, and organizes user's business information. Includes a wide array of drawing and page-layout tools.
Macintosh Plus, $179.95.

FastTrack Resource
AEC Software
Administrative Software: General-Purpose Software; Project Managers
A simple resource-allocation tool for managing people, rooms, equipment, time, and activities. It gives managers the information necessary to enable them best to allocate resources to meet deadlines. Gives answers to typical management questions such as: which resources are qualified to work on the project, where are the rest of the resources, and which resources are available?
Macintosh Plus, $62.75.

FastTrack Schedule
AEC Software
Administrative Software: General-Purpose Software; Project Managers
A simple "timeline" or Gantt chart scheduling tool. Within minutes, users can visualize all of the projects, tasks, activities, and events in an elegant timeline format that can be enhanced for presentation power. Allows users to painlessly draw activity bars right on a chart. Allows users to type in dates and durations to generate bars. A powerful database tracks start times and dates, finish times and dates, durations, and even percent complete. Can display scheduled vs. actual activities, slips or shifts in schedules, and activity dependencies and links.
Macintosh Plus, $69.95.

Federal Register
Dialog Information Service
Social Sciences: History; United States History
Provides the full text of the U.S. government publication which notifies the public of official agency actions, including regulations and legal notices. Includes presidential documents, rules and regulations, proposed rules, and notices. Indicates issue dates. Configured like a newspaper. New users may retain annual disks. Requires CD-ROM drive.
Macintosh 512E, $750 yearly.

File Force (9-20)
Acius
Comprehensive: Generalized Tool Programs; Word Processors
A file manager for organizing information. Templates included provide a variety of ready-to-use filing solutions. Can relate files automatically and create forms, graphs, or columnar reports.
Macintosh 512E.

File Force (K-16)
Acius
Administrative Software: General-Purpose Software; Database Systems
A file manager for organizing information. Templates included provide a variety of ready-to-use filing solutions. Can relate files automatically and create forms, graphs, or columnar reforms.
Macintosh 512E.

FileMaker Pro
Claris Software
Comprehensive: Generalized Tool Programs; Database Managers
Database manager includes spelling checker; automatic indexing; multiple layouts to view, enter, and print data; graphics tools and color capability; mail merge; instant updating of multi-user files; multi-user file server; variable field length; custom field formats, scripts and buttons; and calculation capabilities.
Macintosh 512E, $299.

Filevision IV, Version 1.1
TSP Software
Comprehensive: Generalized Tool Programs; Database Managers
A hypergraphic database system in which drawing page objects can be directly attached to database records. Ideal for desktop mapping and facilities management applications. Uses standard drawing tools or bitmapped symbols to create graphic objects. Imports and exports standard graphic and data formats. Powerful report generator. Can use standard forms and do mail merge (does not require external word processor). Provides flexible forms design with computed fields and automatic data entry. Graphics supported in any field (PICT 1 and 2, EPSF, and bitmapped.) Provides color support.
Macintosh Plus, $195.

Fitness Reporter
RK Solution
Physical Education
This template for *Filemaker Pro* (from Claris) will bringphysical education classes to the computer lab. Its highlights are wide age applications; fitness reports for parents and students which denote areas needing improvement and how to improve; comparisons of fall and spring scores against test standards; fall and spring worksheets for data collection; and generation of fall and spring averages by sex and age for each activity. Useful for setting goals. Easy data entry and operation.
Macintosh 512E.

Footage '91
Highlighted Data
Comprehensive: Class Management Aids; Miscellaneous Aids
A comprehensive directory of stock film and tape footage. Includes more than 35,000 source items classified by subject. Requires CD-ROM drive and *HyperCard.*
Macintosh Plus, $199.95.

4th Dimension
Acius
Comprehensive: Generalized Tool Programs; Database Managers
A relational database which allows school systems to keep track of their students, maintain an inventory system, and implement an accounting system. Relationships established immediately by dragging between fields. Allows data entry into multiple files.
Macintosh 512E.

Gateway Authoring System
Don Johnston Developmental Equipment
Reading: Reading Readiness
Teachers can create lessons and stories using the *Gateway Stories* format. Students then select, listen to, and turn pages with mouse click. Teachers may add graphics using a scanner or drawing tools. Requires *HyperCard.*
Macintosh Plus.

Grade Machine – Attendance Module
Misty City Software
Class Management Aids: Grades and Recordkeeping
Expands the capabilities of Misty City Software's *Grade Machine* by allowing a teacher to design up to seven unique attendance codes as well as a variety of seating arrangements. Extends *Grade Machine*'s progress reports by including either the attendance spreadsheet or the seating chart, and both can be individually printed. Students can be randomly selected for drills and questions through the seating chart.
Macintosh Plus, $29.

Grade Machine – Personal Attendance
Misty City Software
Class Management Aids: Grades and Recordkeeping
Allows teachers to take attendance using an attendance spreadsheet or a seating chart. Attendance data can be sent to Misty City Software's gradebook software *Grade Machine* for printing in student progress reports. The attendance spreadsheet and the seating charts can be printed. The seating charts can be arranged alphabetically, randomly, or manually in any configuration by dragging icons. Teachers can design up to seven of their own attendance codes, and can set up the spreadsheet for a 5-, 6-, or 7-day week. The seating charts can be used to select students randomly to call on for drills.
Macintosh Plus, $29.

Grade Quick!
Compu-Teach
Class Management Aids: Grades and Recordkeeping
A gradebook program which allows teachers to enter all data on a spreadsheet. Instantly computes and assigns standard or user-defined grades; calculates, displays, and prints more than 17 statistics; imports and exports student names and scores; and merges files and drops low scores. Allows weighting of each assignment, category, and grading period. Accepts numbers, letters, words, and symbols for grades. Prints versatile reports by student, class, or assignment. Displays and prints attendance records and missing work lists. Allows entering of up to 1,000 students or 200 tests per class. Sorts students and assignments in more than 20 ways.
Macintosh Plus, IBM PC and compatibles, $79.95.

Hyper-Abledata
Trace Center
Comprehensive: Generalized Tool Programs; Aids to Learning Disabled
Complete database of assistive technology products for people with disabilities. Includes descriptions of more than 17,000 products, plus pictures and sound samples. Updated every six months. Keeps records. Requires CD-ROM drive.
Macintosh 512E, $278.

HyperCard for Educators: An Introduction
International Society for Technology in Education
Computers: Using System and Application Programs
For users who know basic Macintosh computer skills. Users learn the basic elements of *HyperCard* (version 1 or 2).
Macintosh Plus.

HyperCard in a Hurry
International Society for Technology in Education
Teacher Training
Six sessions present *HyperCard* as a tool for information storage and retrieval and illustrate essential techniques and tricks for building a variety of *HyperCard* stacks. Concise appendices help troubleshoot computer and *HyperCard* problems, and point the way to more advanced topics such as scripting, animation, and sound.
Macintosh Plus, $18.95.

HyperCard Projects for Teachers
Ventura Educational Systems
Teacher Training
Learn to develop interactive *HyperCard* stacks by completing these step-by-step projects. Topics include *HyperCard* Basics, Creating Stacks from Scratch, Graphics Techniques, Animation, and Word Games. Start each project by loading a shell. Users can follow the instructional guide and add buttons, fields, graphics, scripts, and more. Network version available.
Macintosh 512E, $29.95.

HyperCard
Claris Software
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
An easy-to-use and -learn software system built on the simple model of the card file, but with a scripting language powerful enough to use in developing courseware, controlling videodiscs, retrieving mainframe data, or creating simulations. Includes comprehensive documentation; tool stacks; ready-to-use stacks; and ready-made buttons, fields, and templates.
Macintosh 512E, $199.

HyperCard Videodisc Tutorial Authoring Tool
Sunbelt Technologies
Comprehensive: Author Languages
An authoring tool for educators enabling them to create original lessons which include nine specific instructional events. May be used to control a videodisc player. No programming or *HyperCard* expertise required. Keeps records. Network version available.
Macintosh 512E.

HyperTalk for Educators: An Introduction
International Society for Technology in Education
Computers: Computer Programming
Designed by a teacher for teachers and emphasizes open-ended learning and exploration. Classroom-tested, this text is appropriate for self teaching, teacher training, or use by secondary students. Short chapters present simple, accessible examples leading to major concepts. Each chapter has a debugging and testing section to help users solve *HyperCard* problems and ends with projects and activities for further practice.
Macintosh Plus, $29.95.

IdeaFisher
Fisher Idea Systems
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
A productivity tool designed to turn into a brainstorming and problem-solving partner. Uses two databases, Q Bank and Idea Bank, which work synergistically to assist users in maximizing the number of options they can develop.
Macintosh Plus, IBM PC and compatibles.

Informed AutoForm
Shana
Administrative Software: General-Purpose Software
An innovative data-entry and collection tool; turns any form created with *Informed Designer* into standalone applications called autoforms. The autoforms make use of all the intelligent features provided by *Informed Designer*, such as defaults, formatting, calculations, lookups, error checks, and choice lists. This means that the data will be entered accurately and quickly. *Informed Manager* can import autoform data easily for quick compilation of results.
Macintosh Plus, $97.

Informed Designer
Shana
Administrative Software: General-Purpose Software
Enables users to create professional-looking forms with form-specific drawing tools or to import scanned images of existing forms. Features definable grids, guides, and rulers, pen and fill patterns from 0 to 100%, varied line widths from .25 to 999 point. Specialized tools make the creation of fields, tables, check boxes, rounded corners, and combs fast and efficient. Includes a variety of intelligent features such as calculations, formatting, error checking, choice lists, lookups, and links to database or accounting systems (under System 7). Includes samples and clip-art disks.
Macintosh Plus, $192.

Informed Manager
Shana
Administrative Software: General-Purpose Software
Fills out forms created with *Informed Designer*. Saves unnecessary typing and ensures accuracy by utilizing intelligent features such as calculations, defaults, formatting, error checking, and choice lists. Looks up information from other forms or accounting or database systems. Completed forms are automatically stored in a database and can be searched, sorted, mailed to others, or viewed as lists. Imports or exports data to integrate *Manager* with other applications. Mails single or multiple forms across any network using *Microsoft Mail*. Adds typed or voice message notes to any form. Includes password security.
Macintosh Plus, $127.

In/Out
CE Software
Administrative Software: Employees
An electronic in/out board which allows users to know instantly who is in or out, where they are, when they are returning, and why they're gone. Can also be used to track the availability of vehicles, conference rooms, and other school, institution, or company resources.
Macintosh 512E, $199.95.

JMP Software
SAS Institute
Administrative Software: Planning
A statistical visualization and exploratory program. Presents statistics in a graphical way so they can be visually understood. Has a simple, yet powerful data table for managing data. Capabilities include univariate statistics and graphs; analysis of variance and multiple regression; quality-control charts and statistics; business graphs; nonlinear model fitting; multivariate analysis; group processing; nonparametric tests; and more. Contact company for volume pricing. Network version available.
Macintosh Plus, $347.50.

KidDesk
Eumark
Comprehensive: Class Management Aids
Enables teachers to manage instruction by choosing which programs and files each student can launch from a personalized desktop, while preventing children from getting access to the main desktop. Designed to make computing easier for children and worry-free for teachers. Includes an assortment of desk accessories for children, including personalized working calendars, a clock, and a calculator. Sound in options provides fun. Requires 2MB RAM for color; double the memory requirement for System 7.
Macintosh Plus, $49.95.

LapLink Mac III
Traveling Software
Comprehensive: Generalized Tool Programs; Telecommunications Tools
Provides everything users need for fast Mac-to-Mac and Mac-to-PC file transfers. Lets users choose the way they want to transfer: with the enclosed cable, with a modem, with *AppleTalk* cables, or with SCSI cable. If users are moving files between Macs and PCs, they can control the file transfer from either computer. Over *AppleTalk*, they can transfer files with an unlimited number of users. A sophisticated password protection system lets user decide who has access to which files.
Macintosh 512E, $149.95.

MacCare
SofterWare
Administrative Software: Student Records
An easy-to-use solution for all the major administrative needs of a private school or child care center. System handles registration and data management, billing, scheduling, and attendance management. Network version available.
Macintosh 512E, $1,295.

Mac Dewey
Mousetrap Software
Administrative Software: Library Administration; Circulation
A library catalog program for small libraries. Uses the Dewey Decimal System with integer specifications. Searches on subject and author. Has check-in/check-out features.
Macintosh Plus, $79.95.

MacFiscal – Fund Accounting on the Macintosh
Turner Data Systems
Administrative Software: Financial Accounting
A budgetary fund accounting system designed specifically to meet all of the financial accounting requirements for district administrators. A modifiable 27-digit account number satisfies each district's account number structure and provides connectivity with purchase orders, encumbrances, expeditures, stores inventory, payroll writing and fringe benefits, income, general ledger, and reports. Reports are selective within the account number and they are date sensitive. Special features include multi-user, modifiable programs and Appletalk network compatibility.
Macintosh Plus.

MacFlow
Mainstay
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Provides a simple and effective means for developing ideas in organized flowchart form. Users simply drag chart objects into place and connect them with flow lines. Flowcharts can be drawn up to ten times faster than with drawing programs or pencil and paper. Provides ANSI standard flowcharting symbols as well as the ability to create customized symbols. All aspects of charts can be in full color. Charts can be hierarchical. Double clicking on a symbol in the chart can bring up a linked subchart. Charts can be printed on a LaserWriter or ImageWriter, or exported to any desktop publishing program.
Macintosh Plus.

MacLang
Gessler Publishing
Comprehensive: Author Languages
A flexible, easy-to-use, two-disk authoring system which allows teachers to create computer lessons. It can be used with English, French, German, Greek, Italian, Japanese, Latin, Portuguese, Russian, and Spanish. The various exercise formats include vocabulary equivalency drill, fill-in-the-blank, multiple-choice, reading comprehension, scrambled sentence, and cloze. The activity can include listening and reading comprehension and grammar and vocabulary drills. Network version available. Requires *HyperCard*.
Macintosh Plus, $79.95.

To Be Continued....

Hypermedia continued from front page

ages—which can be searched, organized, and retrieved by the users according to individual needs. A typical hypermedia "document" might contain explanations in text, line drawings, animated graphics, a narration or music track and one or more full-color, full-motion video segments. A chunk of information in such a hypermedia document could contain information in any or all of these forms, plus link tokens, icons, or buttons that direct you to other chunks the author deemed related.

Hypertext is a subset of hypermedia. Like hypertext, information in hypermedia can be accessed randomly or in any order specified by the user. Early versions of hypermedia software depended heavily on the author creating the links between chunks of information. More recently, increased computing power, data compression, and better software design have allowed users to describe information needs interactively using fast search-and-retrieve algorithms for full-text searches, and Boolean connectors, such as AND, OR, NOT, and exclusive OR modifiers.

What's the Difference Between Hypermedia and Multimedia?

Although the terms "hypermedia" and "multimedia" are used interchangeably, with multimedia being used most frequently, there really is a substantive, conceptual difference – interactivity.

Like hypermedia, multimedia presentations communicate information from multiple sources, including sound, text, and graphics. But multimedia doesn't necessarily allow for user interaction. A point-of-purchase display might involve a multimedia presentation that the viewer watches or listens to passively without control of the order of presentation. A multimedia presentation is analogous to listening to a lecture, reading a book with illustrations, or watching television; that is, the information is presented in a fixed sequence determined by the author, not the viewer.

Hypermedia presentations allow the viewer to interact directly with the content; that is, to change the sequence and format of the presentation as it is being experienced by actively engaging the viewer in a two-way communication process. A hypermedia presentation is better suited for use by individuals, whereas multimedia can be used effectively with large groups. Often, an application with hypermedia potential is reduced to a multimedia application because the teacher controls its use rather than allowing students individually to work with the application. An example of this kind of teacher behavior is presented in the Apple/NCSS videotape "Making Connections: Social Studies Through Technology." The scene shows a one-computer classroom in which a *HyperCard* application is used as a lecture aid by the teacher as the students sit passively.

Until quite recently, building a hypermedia application was best left to experts. The learning curve for available authoring packages was steep and the required technology was expensive. However, the development of *HyperCard* for the Macintosh and *Guide* for IBM computers signalled the beginning of a hypermedia explosion. These tools enabled anyone with a Mac Plus or a PC to author hyperware. In early 1992, Apple jumped to the forefront with its System 7 operating system and *QuickTime* technology, soon followed by IBM's hypermedia enhancements under the title *Linkway Live!* which will bring similar hypermedia capability to IBM users.

In their earliest stage, hypermedia products consisted primarily of text and line-art graphics – the ubiquitous *HyperCard* stacks. In the second stage, animation, video from CD-ROM and laser videodiscs, and digital sound were added. In the third and current stage of development, we are seeing greatly increased ease of use through better authoring software and better system integration. The next stage promises decreased costs and an even greater degree of system integration with high-quality sound and video capabilities built into the basic computer system.

As hypermedia advances occur, the industry is making an effort to develop a set of standards to increase compatibility of the many components found in a typical hypermedia/multimedia application. The Multimedia PC Marketing Council is playing a central role in this effort for IBM-compatible systems. Hardware and software labeled with the Multimedia PC logo (MPC) are supposed to offer "plug-and-play" compatibility. However, in a curious anomaly, the pre-packaged multimedia system offered by IBM departs from the MPC standard inn several ways and does not guarantee software compatibility of IBM products with MPC-labelled products.

Appropriate Teaching Technology

To be truly useful in the classroom, a hypermedia tool, like any other teaching tool must meet certain criteria:

1) The tool must be workable; that is, its use must contribute directly to the attainment of the desired outcome.

2) It must be feasible. The required technology must already exist or be able to be produced without requiring the invention of new technologies.

3) It must be socially acceptable. Aversive conditioning using pain is a workable and feasible instructional strategy; however, it is generally regarded as not socially acceptable.

4) Its use must be virtually self-evident. If it takes more than 15 minutes to learn to use the tool effectively, it is probably too complicated for classroom use.

5) Use of the tool should be transparent. The tool should not get in the way of the learning process. The tool should enhance the delivery of content as unobtrusively as possible.

6) It must involve interactive communication; that is, a two-way exchange of information. For example, classroom discourse is necessary to make the textbook an effective tool.

7) It must allow for corrective feedback. A spelling test is not an effective learning tool until it is corrected and the results shared with the learner.

8) It must be transformative. Use of the tool should change the learning process by making it more effective, more efficient, or, ideally, both.

9) It must be cost-effective. The ratio between the cost of instruction and the value of the learning outcome should be relative to that of other instructional alternatives. Don't forget to include the development cost unless you are restricting your applications to off-the-shelf programs.

10) It must be context sensitive in two ways: Form must follow function; and the technology tool must be appropriate to the user. A chainsaw in the hands of a six-year-old will cut a lot of wood fast, but it is a poor match to the child's ability to use it.

Until recently, most hypermedia tools failed miserably on one or more of these criteria. However, recent innovations in hardware and software design are making multiple sources of information in digital form more accessible. As a result, hypermedia has become a more useful tool for the classroom. Simultaneous advances in five technologies make this possible.

Graphic User Interface (GUI). The Apple Macintosh pioneered user interfaces that use graphic images rather than text, based on work done at the Xerox Palo Alto Research Center (PARC). Icons, point-and-shoot item selection, scroll bars, pull-down or pop-up menus and the desktop metaphor have all become the industry standard for graphic user interfaces. Variations on these graphic elements appear in the Windows, GeoWorks Ensemble, New Wave and DeskView user interfaces for IBM-compatible systems. At present, the Apple Macintosh system remains the industry leader with the most highly developed, consistent, stable, and tightly integrated hardware-software solution. IBM users will have to shift from DOS to the OS/2 operating system to get equivalent functionality and ease of use, although the Microsoft Windows 3.1 upgrade with a fast 386 or 486 PC with at least 1MB of video memory and a video accelerator comes close.

General Markup Languages (GML). In order for applications to exchange information freely, the data needs to conform to a common set of specifications. Until relatively recently, there was little conformity in the way data was saved, making it necessary to re-enter or convert data before it could be used in a second application. Capturing and encoding data with a general markup language, such as Standard General Markup Language (SGML), which identifies the structural characteristics of the data (heading, body text, graphic image, and so on) as well as the format (type style, size, and so on), increases flexibility of use and ease of data exchange. Markedup data can be used in a text document or on optical media with much less pre-production effort. At present, the federal government is the chief proponent of the use of SGML for data preparation, but standard markup languages are rapidly gaining favor in the book publishing industry as well.

Data Compression. Sound, graphic images, and full-motion video images, in contrast with text files, require very large amounts of memory when converted to the digital form necessary for use with computers. Until now, this has increased the cost of use of these media well beyond the budget of most school districts. However, new data compression algorithms, which allow data compression ratios of as much as 100:1, will make it feasible to include sound and full-motion video in useful amounts in floppy disk-based applications. Apple's *QuickTime* program available with System 7.0 is an effective implementation of data compression for video capture and display, and users can expect to see major gains in this area in the months ahead.

Low-Cost Sound and Video Capture. To develop original hypermedia instructional materials, it is necessary to capture sound and video information from multiple sources—scanners, video cameras, and audio sources, as well as to merge text and graphic files. Since early 1991, the cost of high quality video capture has dropped from around $4,000 to under $500 per authoring workstation. Audio capture is now being included as original equipment in new Macintosh computers, which suggests it will soon become standard for all similar computers.

Processing Speed. Improvements in design and manufacturing techniques that allow hundreds of thousands of transistors to be placed on a single chip, plus the use of electronic cache memory and parallel processing, have increased the speed of processing large digital sound and graphic files so that full-motion displays are feasible on the new generation of classroom grade computers, such as the Mac LC, at half the frame speed we are used to seeing on television or film. Though the motion is somewhat jerky, it is surprisingly good for a computer application. ❑

Don't Miss Next Month's Thrilling Conclusion:
"What to Look for in a Hypermedia System!"

Advice continued from front page

industry needs non-military work – why not put them to the task of training teachers how to use technology in education?"

Colorado. Robert A. DeBlauw, Ph.D., Director of Information and Technical Services at Littleton Education Services Center, was very much aware that the citizens of his state had turned down two initiatives which would have increased funding for education. "Help us deal with underfunding of K-12," is his message to the new prez. Equally important: "Better use of technology in education...has yet to reach a critical mass where it makes any difference [in how students are taught]."

Oklahoma, for a vocational teacher's point of view. Ralph Barnett, Network Manager of Central Oklahoma Area Vocational Technical School, is asking for real direction from the top - and for jobs. "In vocational, we're moving the kids toward computers as much as possible because everything's done that way now. We're trying to teach what industry needs; but if there's no industry, if there are no jobs, what do we teach?"

Iowa. Ronald S. Fielder, Ph.D., Chief Administrator of the Grant Wood Area Educational Agency in Cedar Rapids, is concerned that teachers are getting a bum rap. He wants the Sandia Study released, which he feels was suppressed by the Bush administration and which shows the education community is not as bad as people think.

Missouri. James Tice, Superintendent in Strafford, thinks America's future rests on a restructuring of the school system and would start with massive retraining of teachers. Of present staff: "Some can be retrained, but some good people just aren't going to change and I wouldn't waste time trying." Stop creating low-tech teachers; colleges of education are ill-equipped to produce teachers that have technological savvy. National leadership to get the Boards of Education and the state legislatures to have a vision of what can and should be done...like Gore's support of a national electronic highway.

Illinois. Mike Hill, Director of Media Services, School District 303, in St. Charles, has the good fortune to benefit from a partnership with the Arthur Andersen Company, which has an educational facility there. Mike says it's not money that's needed at first, it's a change in thinking about public education. If we understood his point and we think we did: if the attitude is right, the money will be found; if the attitude is wrong, throwing money at it doesn't do a bit of good. Mike is for putting emphasis on *teacher* education. "If we want teachers to use technology, then we have to train them." Also noted that 7% of Arthur Andersen's net profit is plowed back into educating its employees.

Michigan. Dr. Ed McKeehan, Computer Coordinator at Grosse Pointe Schools admits he's in an affluent district and knows the usefulness of money, but that it's not enough. "I am tired of so much rhetoric and so little action. I want a real commitment, including resources, to provide the technology for education *on an equitable basis*. We need leadership – not just at the national level, but at state and local as well."

Barbara Harper, Project Specialist in Education and Learning at Genesee Intermediate in Flint, who almost single-handedly got TESS accepted in Michigan, also thinks teachers need training and wants to see more budget for that. Applauds parental involvement; would like to tell President Clinton he also won in a statewide mock election in which 160,000 schoolchildren cast their little ballots.

Ohio. Ben Davis, who is a professor with Union Institute of Cincinnati, wants the new administration to make a number one priority out of narrowing the gap between the technology that's available and schools' slow acceptance of it. "The gap keeps widening," says Ben, noting that "multimedia is the strongest educational tool we'll ever have."

South Florida, where the ravages of Hurricane Andrew are still felt: an educator who preferred we didn't use his name said he's still sleeping on the floor of his shattered home and found long-range thinking difficult at this time. Gave high praise to the army, once they were ordered in, for help in getting the schools up and running.

Connecticut. (Mrs.) Angie Lincoln, secretary to five media coordinators at South Windsor school (also a mother), wants anything which will help get parents involved. (Implication was that teachers as well as parents need help in working together.) "Leadership" was her rather plaintive request.

New York. And, finally, we talked to Ken Komoski of EPIE Institute, who would like to see Vice-President Gore's enthusiasm for NREN (National Research Education Network) fulfilled. "The promise of NREN is that in this decade we would see the electronic delivery of all kinds of mediated learning, not just to schools but to homes as well." Komoski pointed out that most of the important decisions on education are made at the state and local level, but the funding of the "electronic highway" would show federal leadership at its best.

Late word from insiders in the Clinton camp indicates the new President hopes to take quick action on legislation dealing with national education standards and student-aid programs; there is a definite feeling that we may yet get an "Education President."

As some have pointed out, Mr. Clinton, a po' boy from a small town, owes just about everything to the superior education he received – including Yale and Oxford. ❑

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P. Kenneth Komoski, Executive Director, EPIE Institute
Pat Lutzky, Manager, SCISS\TESS

STATS

Computing Thrives

The value of computers and software sold annually in the U.S. is now twice the size of the defense budget. Despite the recession, the annual growth rate of the 100 largest software companies is more than 20%.

Libraries

Visits per year per person to libraries serving fewer than 1,000 people: 6.

Visits per year per person to libraries serving more than 1 million: 2.25.

Total volumes in public libraries nationwide: 613 million.

Total number of video materials: 3.8 million.

One in Five Illegals

The Software Publishers Association announces good news: software piracy is down from an estimated loss of $2 billion in 1990 to $1.2 billion in 1991. The bad news remains that 1 in 5 computers run on illegal software.

Teacher Mobility

Chances are better than eight to one that an elementary- or secondary-school teacher will remain in teaching, and at the same school, in any one year; only five to eight per cent change schools; while between five and seven per cent, on average, leave teaching altogether; this according to the National Center for Education Statistics in a study of public-school teachers during 1988-89.

U.S. No. 1 in Productivity

Despite all the handwringing about lowered productivity, the U.S. worker is still the world's most productive. According to a study by McKinsey Global Institute, in 1990 the full-time U.S. worker produced $49,600 worth of goods and services a year compared to: German workers at $44,200; Japanese at $38,200; and British at $37,100.

The U.S. secret weapon appears to be the laissez-faire environment which allows management to change product lines, realign the workforce, and otherwise stay flexible. Since three out of four workers are in a service category, it was urged that the U.S. push for more freedom in this area as well as more open trade. For example, the U.S. is more than twice as efficient in retailing as the Japanese, and the deregulated American telecommunications industry is twice as productive as Germany's government monopoly.

The report pointed out two areas ripe for improvement: health care and education. Health, education, government and non-profit organizations that are not subject to market pressures employ 28% of America's workers. This compares with 22% in Germany and only 12% in Japan.

However, whether the extraction of every last percentage point of productivity conduces to the welfare of the workers, is another matter.

Imperilled Children

✎ Nearly half of all children not covered by health insurance in the U.S. live in the South, 1.3 million in Texas alone.

✎ Dishonesty is on the rise among high-school students. A recent survey found that one-third of high-school students say they would lie on a résumé or job application; three out five high-school students and three out of ten college students admit to having cheated on an examination at least once in the past year; but at least they're honest about it. The survey is available for $15 from the Josephson Institute of Ethics, 310 306-1868.

✎ Amidst all the hullaballo about intensive sex education and frantic condom campaigns during the 1980s, the pregnancy rate for teenagers remained at just about the same level as before: 110 pregnancies per 1,000 girls. ❑

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EPIEgram

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Software Publishers Strung Up Record Number of Digital Buccaneers in '92

Anti-Piracy Their Dreadful Trade Is

Campaign Described

The Software Publishers Association says that 1992 was the most active year yet for its anti-piracy activities. The SPA investigates cases of software copyright infringement.

Illegal copying of software supposedly cost the software industry more than $1.2 billion in the United States in 1991; of course this figure is based on the ridiculous premise that every pirated program would otherwise have been purchased.

Most investigations begin with an informant's call to the SPA anti-piracy hotline. Information gathered from these calls is then reviewed by the SPA's litigation staff. Depending on the strength of the information and the severity of the case, legal action can be taken using cease and desist letters, corporate audits, or seizure orders.

In 1992, up to 30 phone calls per day poured into the hotline. Based on these leads, the SPA took action against 747 organizations. This included 529 cease and desist letters, as well as 218 audits and lawsuits, resulting in the payment of $3.9 million in fines and penalties. Of the audits and lawsuits filed, 95% were corporate cases; the rest were bulletin boards, training facilities, and schools.

During 1992, the SPA lobbied for legislation which elevates the willful copying of computer software from a misdemeanor to a felony. The new law was passed by Congress last October; it targets professional software pirates who make many copies of software and resell them at low prices; illegal bulletin board operators who distribute pirated software; and PC dealers who offer free but illegal software to hardware purchasers.

The SPA also runs a public awareness and prevention campaign. More than 90,000 copies of *SPAudit*, a free software inventory management tool, have been distributed; this allows an organization to take inventory of software already installed on their computers in an effort to become software-legal. Last year SPA distributed nearly 25,000 copies of *It's Just Not Worth the Risk*, a 12-minute videotape, as well as 20,000 copies of an 8-minute video for computer-using schoolchildren called *Don't Copy That Floppy*.

For more information, call Terri Childs of the Software Publishers Association at 202 452-1600. The Anti-Piracy Hot Line is 800 388-7478. ❑

Home-Learning Networks Ramify

Here's One in Michigan....

A new home-learning network in Michigan called ThinkLink is harnessing telecommunications technology to bring the classroom into the home. Michigan Bell and Warren Consolidated Schools debuted the network on January 28th. It will connect the classrooms of 115 fourth-graders to their homes with fiber-optic cables.

The children—at Thorpe and Jefferson elementary schools in Sterling Heights—will have online access through their home television sets to educational programming selected by their teachers to complement classroom teachings.

Using a remote control, students can interact with the programming; an online encyclopedia and self-paced computer learning programs are in the planning stages.

About a third of the children's homes have already been hooked to the system; the remainder will be connected by the end of February.

For more information: Michigan Bell at 313 223-7194, or Warren Schools, 313 825-2422. ❑

SCISS/TESS Update
Begins on Page 5

The Latest Software for Teachers and Administrators from *TESS*!

Four Big Pages Packed Like Sardines with Program Data and Descriptions

Editorial

Good Morning, IRENE

Pessimists are right more often than optimists, unfortunately, since a high percentage of any new ventures fail. This is offset by the fact that optimists have more fun, even if illusory, whereas pessimists never have a good day. And when optimists win, which they do, they change the world, or their little part of it, forever. There are those who think Ben Franklin, an incurable optimist, should have been the Father of Our Country.[1]

As we head into 1993, pessimists about the introduction and use of computers in K-12 education have reason to say "I told you so." According to a recent survey by Quality Education Data of Denver, only 6% of school districts are expected to double or better their expenditures on hardware. Most of the largest districts were planning to spend the same or even decrease their investment. Overall, of the 217 school districts responding, almost 23% said they would be spending less, a trifle more than 28% will stay the same, and another 23% will increase budgets less than 10%.

The statistics are not unexpected, of course; for one depressing figure that just doesn't seem to change is that no matter what the budget, the average school district spends a constant—and miserly—1% of budget on educational materials. So if the total budget is the same or down a little, the rest follows as night follows day.

Optimists that we are, however, we are cheered by news coming out of the Indian River County Schools in Vero Beach, where something new and important and far-reaching is happening.

"The Indian River Idea" is based on the premise that "Learning occurs in many settings, that all are important, and that all need to work together." In other words, it is the recognition that schools can't do it all; that education is not just for young people; and that the entire community must be involved in the learning process.[2]

The Indian River Idea is built around the premise that all learning environments can be strengthened by tying them together in what is called "IRENE" – the Indian River Educational Network, a community-wide telecomputing system that is open to everyone: schools, of course, but also businesses, churches, senior citizens, housewives, organizations such as the Scouts, the NAACP, other political groups, clubs, parents – in a word, anyone who needs and uses information.

As Rech Niebuhr, generally recognized as the force that got the Indian River Idea started, has stated: "For the first time since the invention of the personal computer there is now an overriding imperative for every household to have one." All the information of the world will be instantly available to everyone – whether it's a recipe for angelfood cake or the climate for the last 100 years or the latest stock market quotations and airline schedules.

Elements of this idea have been around for awhile. Some of the seminal thinking surfaced in "The Battle Creek Plan," funded by the W. K. Kellogg Foundation, which never quite saw the light of day. The idea of treating information like electricity, available to all and metered, has been the *idée fixe* of Jack Taub and the Education Utility. And there are many others.

We like it and evidently we're not alone. Even before the Indian River Idea is complete, even before IRENE is in place, educators and business people and community-minded citizens from Maine to California are asking how they can get a similar system started. Vice President Al Gore is an enthusiastic advocate, seeing it as a natural for the "electronic highway" he was promoting while still in the Senate.

We like the idea so much we're going to take a trip to Indian River and see for ourselves. It sounds like the Big Idea we've all been waiting for, one that responds directly to local support. It's recognition that schools can't, won't, or shouldn't do it alone. Education is for everyone and it doesn't stop with graduation. With the entire community involved, the Indian River Idea, we predict, is going to be the best idea of the 20th Century. And just in time for the 21st.

World Class schools? No – World Class Communities with World Class education for everyone for the rest of our lives.

Earl L. Fultz
Editor & Publisher

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[1] Considering that Ben was what was euphemistically called "a hand with ladies," there is some suspicion that he nearly was.

[2] Only 19% of a learner's waking time is spent in school, and studies suggest that only about one third or less of that time is spent in learning.

In the NEWS

Time Dollars – New Currency for Schools?

Volunteerism in many communities is getting a shot in the arm from the concept of "Time Dollars," a way to earn credits for good deeds which can then be "spent" for one's needs. It would appear that schools could benefit greatly from such a program. Here is how it works:

Person A (who has difficulty walking) helps tutor students in, say, computers or math or reading, and earns Time Dollars which then are spent on person B who helps A with shopping. B then spends these Time Dollars on baby-sitter C who uses the Time Dollars to get home repairs done by D who is learning English and spends the Time Dollars on A for English lessons – and on and on, like a chain letter that works.

Time Dollars is the brainchild of Edgar S. Cahn, a professor at the District of Columbia Law School, who points out that Time Dollars helps knit a community together by making it possible for neighbors to help neighbors, things that people used to do for free. A Time Bank is usually run by a consortium of volunteer organizations; the bank has an account for each volunteer and regularly sends out account statements on hours earned and spent.

The concept is spreading rapidly—it's already in 30 states—because it combines the sense of self worth which comes from helping others with a way to get help for one's own real needs. People are able to convert personal time into purchasing power. In Washington, D.C., for example, a hospital program allows people to exchange two Time Dollars and $13 for $30 worth of groceries.

In some communities, people testing HIV-positive help care for AIDS patients, earning and saving up Time Dollars against the time when they will need help.

The Time Bank also allows volunteers who don't need the credits the opportunity to donate them to those who do.

Panicked MECC Impounds *Freedom!*

MECC (Minnesota Educational Computing Corporation), has pulled the plug on its educational software program, *Freedom!*, about the Underground Railway which helped runaway slaves escape, apparently because of a fuss in a single school. School officials had already decided to yank it from the elementary school in Merrillville, Indiana after it elicited protests from parents and others. One young lady, whose sister is a student at the school, expressed her displeasure: "You're a slave and you're running, trying to get free. If you're captured, you get beaten, chained, and taken back to the master, or you can be killed." The program was said to be demeaning; one of the complaints was that it depicted slaves as speaking poor English.

MECC then announced that it would discontinue *Freedom!*. The company's manager of corporate communications, Dean Kephart, was quoted in a press release thus: "There has been some concern from parents and schools surrounding our product *Freedom!* While MECC has also received some very positive feedback about *Freedom!* parental concerns—specifically in Merrillville, Indiana—have recently caused us to reevaluate this product. ... A letter from MECC will be sent to all schools currently using the product to tell them to discontinue use of the product and to return copies to MECC."

Mr. Kephart of MECC may be reached at 612 569-1572.

Seizures from Video Games

Two groups of Japanese physicians released reports in January which said that over the last seven years a dozen youngsters had developed symptoms of epilepsy while playing video games. Similar cases have been reported in the United States and Britain; Nintendo has placed warnings on its products in the U.S. that epileptic seizures may be caused by the games. Japan's Health and Welfare Ministry recently announced it would study the physical and mental health of young video-game addicts; the study will cover several popular game sets and a representative selection of software.

Flashing lights from television screens were believed to have induced the epileptic seizures. The one case cited in news reports involved an 11-year-old boy "who lost consciousness after being overcome by epileptic symptoms three times while playing a game," whatever that means.

Meanwhile the Epilepsy Foundation of America said that parents, including parents of most children with epilepsy, need not prohibit use of these games unless the child is known to be photosensitive. Photosensitivity is a susceptibility to seizures induced by flickering light or patterns.

About 1% or 2.5 million Americans have epilepsy, but only 3 to 5% of those are photosensitive; the prevalence drops to about 1 in 10,000 for those without other epileptic symptoms.

"We'd like to see research conducted to determine more precisely the number of people affected," said William McLin, a VP at EFA. "As society becomes increasingly dependent on video images of all types, from computers, television, video phones, and other devices, it also would be useful to be able to predict who might be predisposed to these episodes."

The Epilepsy Foundation of America is a national non-profit voluntary organization devoted to research, public and professional education, and help for people with seizure disorders. In addition to serving 80 local and state affiliates, EFA operates a nationwide toll-free information service (800-EFA-1000). You can also call Peter Van Haverbeke or Miriam Dowtin of EFA at 301 459-3700.

Kids Greening Parents

More than half of parents in a recent environmental study admitted they had changed buying and shopping habits because of something their children had taught them, according to studies by Environmental Research Associates of Princeton, New Jersey. Girls, they say, are slightly more likely than boys to influence parents, but both can have considerable effect – in recycling, in buying products with recyclable containers, and even in getting parents to stop smoking.

continued on following page

McTutoring

Indicative of growing parental concern about education is the rapid growth of tutoring franchises. Sylvan Learning Systems, the current leader, expects the company's revenues to increase tenfold in the next five years, to a billion dollars annually. Huntington Learning Centers is already operating in 23 states, and the Japan Kumon Institute of Education, which opened its first math outlet in Los Angeles in 1983, aims to have two million students. Small classes, increased use of technology, and parental involvement combine to give the tutoring industry high marks for getting results.

Mattel Sidesteps Brouhaha Over Dimwitted Barbie

A Teen-Talk Barbie Doll introduced last July caused a furor because one of its phrases was "Math is tough." Manufacturer Mattel solved the problem, sort of, by having Barbie say nothing at all about the subject; doubtless even more accurate than the original.

Put Sheepskins Out to Pasture?

Many economies, experts say, can't utilize more than 25% of a workforce that is college trained in the traditional sense. In Europe, there is considerable emphasis on apprenticeship programs, with Germany, for instance, enrolling two-thirds of its higher-ed students in such alternate education. Advocates in America point out that half of high school graduates do not have a marketable skill – with dropouts, of course, even less likely to find and hold a decent job.

Learning and Working Synonymous

Henry Ford's manufacturing revolution depended on reducing work to such simple units that illiterates could perform the functions. No more! The long, relentless production line of standardized toil is about to become a thing of the past and the "worker as machine" with it.

The factory of the future must be able to switch products with little loss of efficiency. Workers will need to be flexible and multi-skilled, able to work in teams or alone, with the ability to acquire new skills as needed.

To minimize boredom, team members will have interchangeable skills; to increase productivity, workers must be able to use information technology (computers, that is) as part of their tool kit.

According to the National Alliance of Business, corporations can't wait until workers are 27 or 28 to hire them. The current experience is that younger workers are too unskilled and too immature, hence too expensive to train; but the shortage of labor predicted for a resurging American economy will force hiring at an earlier age.

According to a survey at Boston University, business executives placed the training and retraining of workers fifth in importance (compared to tenth two years ago) on a list of what they can do to improve performance.

This can also be seen in industry's continuing interest and growing support of educational changes, especially in youth-apprenticeship programs, which business groups see as the best way to make young people productive employees at an earlier age.

Ready, Fire, Aim:

A report from the RAND Corporation urges reformers to take more time with school personnel to plan, implement, and refine educational improvement programs. The report, *Time for Reform*, found many reforms put a cumulative burden on administrators and teachers for which reformers have not prepared. Copies of the report are available for $4.00 each from RAND Corporation, P. O. Box 2138, Santa Monica, California 90407-2139. Telephone 310 393-0411, ext. 6686.

Educators Star-Struck for $18 million

Uncle Sam, not Santa Claus, delivered the year-end goodies, $18.4 million, to be exact, in Star Schools programs. The biggest recipient was the Iowa Distance Education Alliance, in cooperation with the Iowa Public Broadcasting Board and the Iowa DOE, to establish a statewide learning network via two-way interactive fiber optics.

Awards in the $2-million range went to six telecommunications partnerships in California, Massachusetts, Michigan, South Carolina, Washington State, and Washington, D.C. Smaller awards went to help areas not yet served by telecommunications partnerships in California, Colorado, Missouri, and South Carolina. A grant of $500,000 was awarded the Southwest Regional Educational Laboratory in Los Alamito, California, to pay for the first year of a two-year study to evaluate the effectiveness of the Star Schools Program.

Anyone interested in getting a piece of the pie should contact: Office of Educational Research and Improvement, U.S. Department of Education, 555 New Jersey Avenue, Washington, D.C. 20208.

Camel Will Walk a Mile for You

RJR Nabisco, purveyor of high-fat/high-sugar snack food and #2 in the production of cigarettes, is investing $30 million in helping key schools confront their inadequacies and do something about them.

(Editor's Note. Will it do any good? Very probably in the schools that have been so blessed. And it certainly is better publicity than the shenanigans that surrounded former CEO Ross Johnson's grab to get control and $100 million plus for his own pocket.

We admit to being ambivalent, however; for, as an ex-smoker, it really angers us to see young girls and boys smoking. How can they be so stupid?, we think. Joe Camel has evidently been a great advertising coup. Singlehandedly, Joe's turned the sales curve up. Wonder where the new sales are coming from?)

Honored Teachers Head for Exit

It is reported by people who watch such things that a surefire way to end a teaching career is to nominate someone as "Teacher of the Year." The problem is that job or career offers pour in from industry and associations, which provide better remuneration and opportunities than staying in the classroom. ❑

SCISS TESS UPDATE
THE EDUCATIONAL SOFTWARE SELECTOR

CCC Guarantee Questioned by EPIE and Others

Call it marketing, call it "one-upping" the competition, call it educating; but Computer Curriculum Corporation is **guaranteeing** that students who use a new multimedia product called *SuccessMaker*, one of CCC's integrated learning system products, will meet performance goals in reading and mathematics.

Critics generally ask: Whose performance goals?

Says Ken Komoski of EPIE Institute: "Both parties have to agree on some very clear, objective measures of what that guarantee will be. That usually means standardized tests, but more and more people are questioning their value."

Competitors in the growing ILS market generally downplayed CCC's money-back offer. Jostens, the largest supplier of ILS, questioned the value of getting money back for those students who don't measure up and have lost a year.

One recurring criticism is that ILSes of the past were just sophisticated versions of pencil and paper worksheets. "Generally the software in these systems is not as good, imaginative, or challenging as much of the standalone software," says Komoski, noting that savvy school districts will want only those lessons on the ILS that are in the school's curriculum.

Software and Technology

Distance Learning Demo

Responding to inquiries from the Blue Springs School District in Missouri, Southwestern Bell Telephone hosted a three-city demonstration of "distance learning" technology this January, using the telephone network to transmit audio and video signals for enriching education.

The three-way videoconference connected Southwestern Bell's headquarters building, One Bell Center in downtown St. Louis; James Lewis Elementary School in Blue Springs; and officials from the Missouri Department of Education in Jefferson City, the state capital.

Representatives from education, government, and business took turns transmitting and receiving through the interactive display units, which contained cameras to send signals as well as video screens to display them.

Blue Springs is the first Missouri school district to be certified as an America 2000 district.

Southwestern Bell's Zeke Robertson says schools could enrich their curriculums through distance learning. "Imagine the impact it would have on students to follow a study unit on science with a distance learning phone call to the botanical gardens, zoo or science center, providing additional sights and sounds to reinforce what the class just covered.

Under the plan, all public junior highs, high schools, colleges, and universities served by Southwestern Bell would be linked to a fiber-optic "superhighway" that would increase distance-learning possibilities. The Missouri Public Service Commission will consider the TeleFuture 2 proposal later this year.

For more info, you can call Scott Hilgeman of Southwestern Bell in St. Louis at 314 247-4613.

Computers Designed for Schools

EduQuest, an IBM Company, introduced a new line of personal computers this January, developed specially for the school environment: the EduQuest Models Thirty, Forty, and Fifty. They can be customized to fit the needs of a specific district, school, or classroom.

EduQuest says it made an effort to get input from its customers, to produce a new generation of computers with the functions educators and students find most valuable.

Educators can order computers which are customized for their particular school and classroom needs. For example, with up to 20MB of memory; with or without a CD-ROM drive; with Token Ring, Ethernet, or no networking capabilities; with or without a 128MB optical drive; with or without the audio subsystem; and with a choice of 85, 129 or 212MB hard disk. Since most options are offered as built-in features, the need for external peripherals and excessive wiring and cabling is eliminated.

The new computers have special features to suit them for the school environment. For example, a diskette dustshield helps ensure that chalk dust does not enter the computer and cause damage. The mouse features a roller-guide ball which cannot be removed without a special tool, and a variety of keyboards are available, including the popular space-saver keyboard, as well as one with an integrated trackball.

The front panel design includes two headphone jacks, one microphone jack, volume control, and a built-in speaker. Each computer has bolt-down capability as a security measure.

The new series is compatible with IBM's PS/2 computers, which means it may not be fully compatible with other IBM

continued on following page

compatibles. The Models Thirty, Forty and Fifty will be available to educators in April starting at the following "national educator discount prices:" Model Thirty, starting at $987 with paltry 1MB RAM and no audio; Model Forty, starting at $1,469 with 4MB and no audio; and Model Fifty, starting at $1,634 with 4MB and no audio. For the name of the nearest EduQuest representative, call 800 769-TEAC.

Sound Investment

Audio-visual experts have long contended that the two elements are equally important for maximum retention; and certainly sound is becoming an essential part of many new software programs. Most audio systems in DOS-based computers sound like spring frogs; to get the most out of the software it is necessary to add a sound card.

As you know from your stereo, you get what you pay for. Highly popular is Sound Blaster at $149.50 list, and Sound Blaster Pro at $299.95 list; and if you pay list, we'd like to sell you a used car. For more info, you can call Creative Labs in Milpitas, California at 800 998-5227.

The Incredible Shrinking Pager

Productivity is the word for the nineties and a big part of increasing productivity in an institution is being able to reach key people instantly. The pager is an inexpensive way to avoid playing "telephone tag" and Motorola is making it easier with a pager the size of a credit card and only ¼" thick. Motorola currently has 80% of the pager market in the U.S. and is the leader even in Japan.

Interactive Couch Potatoes

Nine cities will be guinea pigs for a new interactive video and data service (IVDS) which its enthusiasts suggest will help eliminate TV's reputation as a mindless and passive medium (or "Chewing gum for the mind," as someone put it).

The uses mentioned, however, seem far from challenging. Interactive video, we learn, will allow viewers to test themselves against others in game shows like *Jeopardy* or to try to out-think the coach in sporting events. And unfortunately not mentioned yet is Saturday morning baby-sitter programming that might help the kids learn something.

Tandy Splits

The Tandy Corporation has just split in two parts, Tandy Retail (nearly 5,000 company-owned Radio Shack stores) and TE Electronics, the new name for its computer and electronics manufacturing side of things.

Behind the split is a belief that superstores such as their experimental Computer City and Incredible Universe are the wave of the future in retailing. At the same time, the surge of interest in pen-based systems and multimedia (Grid and Zoomer are Tandy's entries) present an opportunity for TE to have some exponential growth.

Apple Printers for Big Bucks

Apple's new entries in ink-jet color and 600 dpi laser printers are not for the average school budget even though the results are impressive. The Apple Color Printer lists at $2,349; it has some good features (ability to print 11x17, for example) but has not solved the slowness of the process and works only with Macs.

On the laser side: the Apple LaserWriter Pro 600 (list $2,099) and the LaserWriter Pro 630 (list $2,529).

Docs Love Palmtops

With 25% or more of medical costs coming from administrative paperwork, there is hope that clipboards and papers may be on the way out in hospitals. Doctors are being provided with palmtop computers that not only provide instant updates on the patient but also give the doctor instant access to medical information which can be used to diagnose and prescribe right at bedside.

Information about the patient can be quickly downloaded into a desktop PC so detailed information is available to all who need it. Anyone who has ever worked in a hospital can tell you how difficult it is to keep the truckloads of information accurate, up to date, and flowing. Computers save lives!

A Second Opinion – the Patient's

Interactive videodisc programs are coming on the market which will provide patients with the pros and cons of various types of medical treatment; e.g., therapy vs. surgery. Preliminary studies suggest some patients do better when they know the alternatives and have some feeling of control.

Anti-Mischief Software

For the 15 million parents who have a computer in the home (compared to 3.5 million in the schools), the desire to have their children learn from the computer is tempered with a fear they will tamper or destroy important files.

Edmark of Redmond, Washington, has come up with a solution for owners of Macintosh Plus with hard disk, System 6.0.7 or later, or for IBM compatibles that run DOS 3.1 or later. Called *Kid Desk*, it effectively seals off your rig from little exploring fingers while also providing interesting things for kids to do. Price: $39.95. Telephone: 206 556-8484.

Trends in Technology

☞ Newer, faster chips will increasingly be introduced in consumer and educational technology rather than for large business and goverment applications. The reason: the cost of a new chip demands an immediate mass market. Good for educators since the price gets driven down.

☞ More than 10 million cellular phones are in operation, seven years head of predictions. Newer, lighter, cheaper phones and increased emphasis on fiber-optic technology will make instant communications—including computer networking and online availability of software—part of the education revolution in the 21st Century.

Travel Online

Where in the world do you want to vacation? Worldwide Brochures has a new electronic bulletin service which can be used by anyone with a computer and modem for a $12 membership fee. The database has everything from travel advisories to special events and offers of free maps. The bulletin board number is 218 847-3027. For more information: call 800 852-6752 or write Worldwide Brochures, 1227 Kenneth Street, Detroit Lakes, Minnesota 56501.

Travel on Disk

PC USA and *MacUSA*, computerized collections of maps, charts, and data, grades 4-12, are now available from Broderbund Software.

The new software features detailed onscreen maps of the U.S., including instant profiles of all 50 states. A 141-page Teacher's Guide includes lesson plans, reproducible worksheets, and suggestions for a variety of creative projects, activities, and exercises. School editions list at $69.95; Lab Packs, $139.95. Site and network licenses: Mac, $695.00; IBM, $595.00.

Bookshelves on Disc

Walnut Creek CD-ROM has a new item entitled *Desktop Library* which includes the complete text of 2,334 works of literature. Priced at a modest $39.95, it contains more literary classics than any other CD-ROM disc produced so far.

As the publisher points out, it would take a small fortune to get all the books contained in *Desktop Library*. Fully indexed and loaded with ASCII files, the disc is compatible with virtually every computer platform. In addition to hundres of novels, the disc includes dictionaries, the complete text of the Bible and the Koran, important speeches, historical documents, U.S. Supreme Court decisions and thousands of Internet text files.

For more info on this and other titles from Walnut Creek CD-ROM, call 800 786-9907.

Sensei Adds Algebra

Another in Sensei's math and science series, *Algebra* has been added to *Geometry*, *Calculus*, and *Physics*, programs which are published and marketed by Broderbund.

Algebra is a self-paced tutorial which contains more than 1,500 problem sets and covers a full year's coursework. Two features distinguish *Algebra* from the usual textbook and chalk-talk, note the publisher: animated explorations and immediate feedback. Since it moves at the student's own pace, *Algebra* can be used as an extension of classwork, a refresher course, or a private tutor, and is particularly useful with students who need remedial work or for those who want to accelerate learning.

Two special packages are available to educators: School Editions (Teacher's Guide and one set of backup disks) for $99.95; and Lab Packs (Teacher's Guide and five sets of program disks) for $199.95. Telephone 415 382-4400.

A Thousand Points of CD-ROM

Proof of sorts that CD-ROM is on its way, is that there is at least one CD-ROM drive installed in every public library in the U.S. with an annual budget of $100,000 or more - 1,021 of them, to be exact.

– Market Data Retreival, Shelton, Connecticut.

Ethnic News Watch Database Celebrates First Birthday

While some school districts are still white bread, urban schools are increasingly nam, pita, tortilla, rice noodles, and *chbz* (phonetic Arabic), to name but a few. With changing immigration patterns, the number of cultural and ethnic origins to be found in even an average classroom can be considerable. One L.A. school reportedly had some 60 different languages with which to contend.

For educators faced with the need for accurate, timely information on ethnic matters, a recently formed database, *Ethnic News Watch*, is helpful. The complete 1992 ENW database on CD-ROM contains more than 40,000 full-text articles, in both English and Spanish, compiled from more than 75 sources. Currently only U.S. sources are used, but this will be expanded to include Latin American and Canadian publications as well. Typical titles: *Armenian Reporter*, *Irish America*, *La Voz Hispaña*, *Seminole Tribune*, *Jewish Exponent*, *Sho Ban News*, *Polish-American Journal* and *Navajo Nation Today*.

The publishers assure us the search has been simplified and the CD-ROM discs are updated monthly. A unique feature is that the service can be purchased in monthly, bimonthly, or quarterly subscriptions; at considerably less cost, of course, than to subscribe to all the publications themselves.

For more information, contact SoftLine Information, P. O. Box 16845, Stamford, Connecticut 08905. Telephone 203 968-8878 or 800 524-7922.

Virus Cure

Anyone concerned with virus elimination might check into the newest from pioneer virus-killer Digital Dispatch. DDI's toll free number is 800 221-8091.

Data Physician PLUS!, first sold in 1985, has undergone continual enhancement and is now recognizing more than 1,800 real-world viruses including variants.

According to Eric Hansen, Director of Development, virtually all other major virus hunters use simple string searches to locate viruses, an approach which causes false alerts and unreliable virus removal.

To overcome this limitation, DDI completely disassembles each new virus and runs it within a proprietary virus-testing environment where it is completely mapped, including modifications. Hansen also notes that *Data Physician PLUS!* has the ability to restore original files, after viruses have been removed, without deletions or damage.

❑

(Second of Two Parts)

The Latest of TESS Programs *(Chiefly for the Macintosh)*

for

Teachers and Administrators

from

MacroMind to Work

MacroMind Director
Macromedia
Comprehensive: Generalized Tool Programs; Graphics Generators
A multimedia authoring tool for creating distributed interactive applications, presentations, and animation that can be controlled by the user or viewer. Includes *QuickTime* capabilities. Supplementary CD-ROM available for which CD-ROM drive is required. Tutorial included.
Macintosh Plus.

MacSchedule
Mainstay
Administrative Software: General-Purpose Software; Project Managers
Automates the design and creation of Gantt-type schedule charts. Users work directly with the schedule graphics instead of working with a classic numeric interface. Facilitates status tracking: work progress, early and late starts, and schedule slips are automatically handled. Schedules can be quarterly, monthly, bimonthly, weekly, daily, or free-form. Time-to-go and elapsed time can also be displayed. Standard stop, start, and milestone symbols are provided, or users can create custom symbols. Includes an integrated spreadsheet capability which allows user to enter and graph resource or financial data on the same page as a schedule.
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Macintosh Plus.

Mac School District Student Management
Chancery Software
Administrative Software: Student Records
Provides a balance between central control and site-based management. Within the district, each school site operates independently using *Mac School Student Information System* and connects to *DSM* by modems or by a wide-area network. Compiles individual school's data into a consolidated district database, providing central office personnel with immediate access to complete student, teacher, and course information. Price depends on number of schools; contact supplier for details. Network version available.
Macintosh Plus.

Mac School Fund Accounting
Chancery Software
Administrative Software: Financial Accounting; Fund Accounting
A powerful single- or multi-user district system which meets the accounting needs of public and private schools. Modules are available individually or as a complete solution: General Accounting, Purchasing, Remote Requisitioning, Invoicing, Personnel, Payroll, Budget Development, Activity Accounting, Asset Register, Cash Management, and Financial Statement Generator. The fully integrated database is protected by a multi-level password system. Initial data entry is easy with the ASCII Import/Export utility, which allows the chart of accounts, vendors, debtors, and student files to be transferred to and from other mini, mainframe, or micro platforms. Network version available.
Macintosh SE.

Mac School Library/Advance Booking
Chancery Software
Administrative Software: Library Administration; Circulation
Mac School Library is a calendar-based integrated catalog and circulation system designed specifically for school libraries. The user-friendly interface of the Macintosh makes it easy for both staff and students to utilize the library's resources. The multi-user version enables libraries to concurrently run multiple online public-access stations and check out books at circulation stations. *Mac School Advance Booking* provides a date-based reservation and checkout system for school and district resource centers. It offers all of the features of a cataloging and circulation system and generates daily picking lists and shipping labels automatically.
Macintosh Plus.

MacTAG
Nisus Software
Class Management Aids: Grades and Recordkeeping
Can process class files for up to 1,000 students. Has a powerful built-in editor and can compute grades based on assignments, test scores, or points in less than a minute. Various grading options allow item weight adjustment to determine final grades. Generates random, confidential ID numbers.
Macintosh 512E, $65.

MetaDesign
Meta Software
Administrative Software: Generalized Tool Programs
A powerful flowcharting tool that helps users to think, plan, and produce diagrams, flowcharts, and organizational charts quickly and easily. Understands when objects in a diagram are related. When the user connects one object to another, they stay connected. When objects are moved or resized, automatically recreates all associated text, connectors, and subordinate objects. Hierarchical structure enables the transfer of detail to subpages, thus providing the ability to link specific objects to hundreds of logically-linked pages. Users can create or edit text anywhere in their diagrams. Every object, including connectors, can contain text. Even hypertext links can be established across pages.
Macintosh Plus, $250; IBM PC and compatibles, $350.

MicroPhone II 4.0
Software Ventures
Comprehensive: Generalized Tool Programs; Telecommunications Tools
An advanced telecommunication package used to retrieve information from online services, participate in office-to-office business reporting, and exchange data with other computer users. Includes a powerful script editor and supports *HyperCard* 2.0 XCMDs and XFCNs. The program supports XMODEM, YMODEM, YMODEM-G, ZMODEM, Kermit, and CompuServe's Quick-B file-transfer protocols and supplies terminal emulation for TTY, VT52, VT100, VT102, VT220, VT320, and IBM PC-ANSI. A new showcase front end called Loran is also included. Contact company for volume pricing.
Macintosh Plus, $85.

Micro Planner KeyPlan
Micro Planning International
Administrative Software: General-Purpose Software; Project Managers
A feasibility/proposal writing tool. To get started, a user jots down a few ideas with the Integrated Outliner. Information put into the Outliner is instantly transformed into a Gantt chart or a PERT chart. The user can then click and drag tasks into place. User can enhance reports by cutting and pasting text or graphics, or customizing Gantt symbols. KeyPlan's Optimizer tells instantly the schedule and cost impact of any changes made. Fully compatible with *Micro Planner Manager*. Allows import and export of all fields and is System 7 compatible.
Macintosh Plus, $149.40.

Micro Planner Manager
Micro Planning International
Administrative Software: General-Purpose Software; Project Managers
For the management of projects of up to 1,000 tasks. Builds projects from PERT, Gantt, outline, or table formats. Customizes screens, reports, and chart symbols. Users can click and drag on Gantt to modify durations or enter progress, and the change is automatically reflected in all project views. Features graphical work breakdown structure; multiple project analysis, including subproject roll-up, inter-project links, and true multiple-project resource analysis, as well as earned-value costing. Can exchange data with *X-pert*, MPI's project-management software, both DOS and Windows versions. Reads *MacProject* and *InstaPlan* files; System 7 compatible.
Macintosh Plus, $417.

Microsoft PowerPoint
Microsoft
Comprehensive: Generalized Tool Programs; Multi-Function Tools
A complete desktop presentations program. Users can create black and white or color overheads and flip charts or full-color 35mm slides. Creates hard copy. Allows users to view and rearrange presentation. Includes full-featured word processor and spelling checker.
Macintosh Plus.

MindLink Problem Solver
MindLink
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
A creative problem-solving and idea-generation package. Includes Aha Bag, a bag of creativity objects, and the Innovators Handbook. *HyperCard* is included.
Macintosh Plus, IBM PC and compatibles, $299.

Mock Package Macintosh Plus Utilities
CE Software
Comprehensive: Generalized Tool Programs; Multi-Function Tools
A professional desk accessory set that includes 10 useful programs; *MockTerminal* is a complete terminal package, *MockWrite* is a text editor, *MockPrinter* will print files in the background, *MockChart* converts tables into charts, *EZ-Menu* provides an alternative to pulldown menus, *Aask* will selectively turn on and off startup utilities, *Control-1* enables the user to specify which Control Panel device is active when the Control Panel is opened, *FolderShare* changes the privilege default settings when creating new folders in *AppleShare*, *LaserStatus* monitors the use of LaserWriter and PostScript printers, and *Widgets* is a potpourri of utility functions.
Macintosh 512E, $49.95.

More
Symantec
Comprehensive: Generalized Tool Programs; Graphics Generators
An organization tool with full presentation capability. Can easily create bullet, tree, pie, and bar charts from an outline. Notes and ideas can quickly be turned into overheads, reports, 35mm slides, or even on-screen presentations. Integrated outlining, word processing, and desktop presentations help with every aspect of organizing and communicating ideas. Advanced stylesheets maximize designs that may later be recalled from a library.
Macintosh Plus, $99.

Peachy Gradebook Mac
Rutledge Computing
Class Management Aids: Grades and Recordkeeping
A gradebook for the Mac. Students identified by name or number. Versatile reporting of grades. Graphical analysis of grade distributions. Keeps records. Trial copy $5.
Macintosh 512E, $30.

Podium Curriculum Manager
Ideal Learning
Comprehensive: Class Management Aids; Instructional Management Systems
A flexible and open management system. Provides management of courseware developed by Ideal Learning as well as third-party software. Will manage software for Macintosh and Apple II student stations. Teachers can create their own scope and sequence to meet the needs of their students. Standard or custom reports can be displayed or printed to meet the needs of teachers, administrators, and parents. Each student works independently, and the program maintains a complete record of all work done on the system.
Macintosh Plus, $6,500.

Precision Fund Accounting System (PFAS)
Precision Computer Systems
Administrative Software: Financial Accounting; Fund Accounting
A fully integrated, easy-to-use fund accounting system for school districts. Provides financial managers with control, analysis, power, and flexibility while following traditionally accepted accounting principles and procedures. Modules included are: General Ledger, Accounts Payable, Accounts Receivable, and Purchasing. Can be integrated with the *Precision Personal Management System* for automatic payroll general ledger updating. Encumbrance accounting is a major feature. Many reports are already defined. Additional user-defined reports can be created using a criteria selection process.
Macintosh Plus, $1,995.

Precision Inventory Management System (PIMS)
Precision Computer Systems
Administrative Software: Purchasing
Provides a fast, comprehensive, and organized method for maintaing current records of school district inventory and fixed assets. Tracks inventory items for an entire fiscal school year. Makes updating this information quick and simple. Tracks inventory maintained in one or more warehouses. Many pre-defined reports. Additional reports can be created using a criteria selection process.
Macintosh Plus, $795.

Precision Personnel Management System (PPMS)
Precision Computer Systems
Administrative Software: Employees
Provides an easy-to-use, comprehensive personnel database for certified, classified, non-contract, and substitute employees. Includes many useful features such as personnel absences, substitute work records, and personnel evaluation. A payroll module is integrated in *PPMS* for use with the *Precision Fund Accounting System*. Many reports are already defined in *PPMS*. Additional user-defined reports can be created using a criteria selection process.
Macintosh Plus, $995.

Precision School Management System (PSMS)
Precision Computer Systems
Administrative Software: Student Records
Maintains records for students, classes, employees, attendance, scheduling, discipline, standardized test scores, special education, language assessment scores, immunization history, and free/reduced lunch. Daily updating of these records is simple and instantaneous. Provides a comprehensive and organized method for maintaing student records relating to the management of schools. Many reports are already defined. Additional user-defined reports can be created using a criteria selection process.
Macintosh Plus, $995; with scanner input program, $1,245.

Project Scheduler 5
Scitor
Administrative Software: General-Purpose Software; Project Managers
An interactive CPM project-management system which provides scheduling, resource, and cost planning capabilities through a high-resolution graphical user interface with full mouse support. Features include Gantt charts with annotation options; network diagrams; tree structures; resource histograms; cost curves; WBS and FF, SS, FS predecessor relationships with lead/lag; free, total, and leveling; resource holidays; baseline; actual start and finish dates; actual units/costs; filtering; sorting; block editing; batch reporting; plotter support; PostScript support; and importing/exporting of data.
$695.

Quisitor Test Generator Program
Prentice Hall
Mathematics: Algebra
Grades 7-12
A program which correlates with the Prentice Hall secondary textbooks. Usually part of a teacher's resources, it is used to create student tests from a database of questions, with the capability to create the teacher's own files.
Macintosh Plus, $159.99.

School Work Request/Maintenance
AD/C Solutions
Administrative Software: Buildings and Grounds
Specifically designed for school districts within the state of California. Will manage and track work requests, automatically generate requisitions, and schedule preventive maintenance. The budget code field matches the format used by the state, and all activity can be tracked by school. Work requests can be monitored by status, in-house and vendor work assignments, start and completion dates, and in-house labor and vendor costs. Reduces equipment downtime through scheduled preventive maintenance with automatically-generated work orders. The system comes with a very flexible, easy to use, ad hoc reporting capability.
Macintosh Plus, $1,595; Preventive Maintenance Module, $995.

SchoolWorks: Department Head
MicroMedia Publishing
Administrative Software: Employees
The most appropriate templates for a department chair. Templates included are: inventory, teacher observation, evaluation, and syllabus. Comes with free site license. Requires *Microsoft Works*. Network version available.
Apple II+/IIe/IIc/IIgs, Macintosh 512E, IBM PC and compatibles, $75.

ScreenShare 1.1
White Knight Software
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
A network utility for demonstrating computer programs and techniques in a Macintosh computer lab. When activated by the instructor, the program temporarily suspends the programs running on student computers and freezes their keyboards, allowing the instructor to gain the attention of students. It then "broadcasts" in real time the instructor's computer screen to the screens of all the other lab computers, enabling students to see on their own screens exactly what is displayed on the instructor's computer. Price shown is for a classroom complement
of computers.
Macintosh 512E, $329.

SIMS - Student Information Management System
Computer Solutions
Administrative Software: Student Records; Multi-function Programs
A complete system designed for managing student information and for assisting schools in making wise decisions. Provides a system for managing a master schedule, student data, grades, attendance, and discipline incident records. Allows scheduling of students as individuals or groups while maintaining even class loads. Multi-term, allowing schools to do course planning for students into future terms. Includes flexible reports, multiple formats for report cards, analysis of course requests, student credits and goals, summary and statistical reporting of attendance, grades, enrollment, student body profiles, and much more. Contains multiple security levels. Network version available.
Macintosh Plus, $1,799.

Surfside Solution
Surfside Software
Administrative Software: Student Records
A complete school administration package made up of six modules: Database, Scheduling, ReportCard, Attendance, Discipline, and Transcripts. Modules are available as separate units or as a complete package. Network version available.
Macintosh 512E, IBM PC and compatibles.

Teacher's Rollbook
Current Class Productions
Class Management Aids: Grades and Recordkeeping
A comprehensive student record-keeping and gradebook system. Records student contact information, calculates grades, reports student attendance, documents special assignments and disciplinary actions, tracks materials checked out to students, and generates numerous reports and form letters. Each data file can handle 693 students and 99 grades per student. Information is available from 20 reports including class size, birthdays, and reminders. Prompt screens throughout the program make this utility easy to use, especially for teachers with large numbers of students.
Macintosh 512E, $44.95.

Test Designer Supreme
Super School Software
Comprehensive: Drill and Test Generators
Comes complete with automatic math question generator, foreign languages, and sample graphics. Included are all the tools for test-making and test-taking. Imports sounds and graphics; printing, page layout, and print preview included. Question types include group, dynamic, true/false, multiple choice, completion, and short answer. Keeps records. Network version available.
Macintosh 512E, $199.95.

TimeMaker
First Wave
Administrative Software: General-Purpose Software
A time and contact management system which replaces manual organizers. Prints calendars, prioritized daily schedules, and address lists on plain paper, ready to place in a zipper binder. Automatically creates optimized schedules based on time estimates and assigned priorities. Uncompleted items are automatically rescheduled. Auto-dialing, mail/merge with form letters, envelope and label printing, and comprehensive correspondence histories improve contact management. Notes regarding meetings and action items may be entered and printed. May be used effectively with PowerBooks, or reports may be placed in zipper binder which the administrator may take anywhere. *HyperCard* included.
Macintosh Plus, $149.

trACE CalGen
trACE Development Center
Administrative Software: Planning
The *trACE CalGen* program is a planning tool for the generation of school calendars. To create a calendar, the user selects the year the school calendar is to start. A series of 24-month calendars are generated starting from January of the year selected and ending with December of the following year. The user can scroll through the calendar months. Individual days can be easily marked as minimal day, teacher day, comment, comp day, holiday, vacation, term begin, or end-of-year. After marking the beginning and ending of the school year, a days-in-year field is automatically updated, allowing the user to try out various school-year configurations. As terms are added, an additional scrolling field is activated listing how many days are in each term. Comments can be added to the days, and may be printed vertically into columns of the rollbook reports. Designed to handle the needs of traditional as well as year-round schools. Will support up to six tracks in a year-round school calendar. Will print three types of calendars: one month to a page, two months to a page, and a bar-type calendar for year-round schools. Network version available.
Macintosh Plus, $99.

trACE RollBook
trACE Development Center
Administrative Software: Student Records; Attendance
Assists teachers or a central office with marking and reporting student attendance. Special attention has been given to meeting the reporting needs of year-round schools and special education. Student and teacher information can be entered manually or imported from tab delineated text files. Can export data to lab delineated text files. Reads a calendar file created by the *trACE CalGen* program. Can be used either as a central office tracking tool or as a teacher tool. If it is used as a teacher tool, rollbook files from many teachers can be merged together to create a central office rollbook file.
Macintosh Plus, $300.

trACE System
trACE Development Center
Comprehensive: Generalized Tool Programs; Lesson Planning
Consists of several management progrms for teachers: *Curriculum Navigator* is an electronic curriculum authoring and distribution tool which allows teachers to look up teaching strategies in the trACE Strategy Bank; *GradeBook* provides teachers a tool to gather assignment information, monitor student progress and demonstrate proficiency with respect to educational objectives; *RollBook* assists teachers or a central office with marking and reporting attendance; *Test Generator* enables teachers easily to create paper tests and keys; and *Calendar Generator* assists the administrator in creating a school calendar up to two years long. Also includes programs that print student activity sheets: *PT Spell*, *PT Math*, and *MathSheet*. These programs support each other and interact with the K-12 set of educational outcomes provided on a CD-ROM disc as modified by the district or school. *Macintosh Plus, $1,000; site license, $2,000.*

The Voyager Videostack
The Voyager Company
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
User can develop educational interactive applications that access the visual and audio information on any off-the-shelf videodisc. Comes with 35 ready-made buttons that can be customized or added directly to user's stack. Includes suggestions on how to create interactive work, as well as solutions to common problems.
Macintosh, $99.95.

Work Request and Asset Management
AD/C Solutions
Administrative Software: Buildings and Grounds
Allows school maintenance departments to manage and track work requests and to schedule preventive maintenance. Work requests can be monitored by status, in-house and vendor work assignment, start and completion dates, or in-house labor and vendor costs. Provides the capability to report on historical activity and perform cost analysis by work order, equipment, project, cost center, building, or vendor. Reduces equipment downtime through scheduled preventive maintenance, with work orders being automatically generated based on procedures and cycles set up by the user.
Macintosh Plus, $2,585. ❑

Cool Toys

New Library Retrieval System

Information Access has announced a new reference system called TOM Junior designed for the junior and middle school library. TOM Junior provides students with the same technology found in the TOM General reference system, which is available for senior high school libraries.

The new TOM Junior provides these features: an index to every article from 57 magazines which junior and middle school librarians have determined most important; index coverage for the most recent three full years of the selected magazines; full text on CD-ROM for all articles from 35 of the indexed magazines. Both the index and full text are updated monthly.

Celeste M. Alleyne, public relations manager of Information Access, can be reached at 415 378-5249.

Dell Computer Premieres Its First Integrated Multimedia System

The new Dell OfficeStation, StudentStation, and KidStation are designed to arrive "ready to run" and are based on the company's recently announced 333s/L and 433s/L personal computers. Prices begin at $1,499 for a complete multimedia system.

"Dell customers can now get pre-packaged multimedia solutions with a minimal investment of time and money," crowed Joel Kocher, president of Dell. "Factory installation of all the software and hardware components and our compatibility guarantee will also mean that setting up and using the system will be as easy as plugging it in and flipping on the switch." (*Technosprite*. Yeah, right.)

Each system comes standard in a basic hardware configuration that includes 4MB of RAM, an 80-170MB hard drive, a 3½" diskette drive, Super VGA monitor, a Sound Blaster or Sound Blaster Pro card and, stereo speakers. This is almost less than minimal for multimedia, but customers can add a factory-installed CD-ROM drive.

Dell says it has tailored its multimedia rigs for three types of users: school-age children, students, and adults working in a home or business. Because all the hardware and software applications and drivers are pre-installed, the systems are said to be easy to set up. Upon booting, the user is presented with Windows icons for each installed application—whether loaded on the hard drive or CD-ROM—and can immediately launch any of them.

Tom Martin, Dell's vice president of marketing, said, "Our customers have impressed upon us that setting up multimedia systems can be an overwhelming task, even for the most technically adept user, so being truly ready-to-run is one of the most valuable features of our multimedia stations."

Information: 800 289-3355.

IBM Debuts Three New PS/1 Models

IBM has added one new model for each of the company's three lines of PS/1 computers: the PS/1 Essential line, aimed at the small business market; the PS/1 Expert line, for the more advanced buyer who may already own a PC; and the PS/1 Consultant line, for those who do business or schoolwork at home.

The new desktop systems, all Model 78s, are powered by a 486DX/33 chip and come standard with 8MB of RAM and a behemoth 211MB hard drive. The new systems come with SVGA color Photo Graphic monitor (*Technosprite*. Which is not to say they have an SVGA card installed so you can make full use of it!), Selectric keyboard, mouse, and modem.

They also come pre-loaded with DOS 5.0, Windows 3.1, Microsoft *Works*, Prodigy software, and *Promenade*. The various Models 78 also come with software to meet the presumed needs of its purchaser: the Essential with *QuickBooks*, *QuickPay* and *Express Publisher*; the Expert with *Address Book Plus*, *Calendar Creator Plus*, and *Text Appeal*; and the Consultant with *Quicken* for Windows and *The New Print Shop*.

New Multimedia Processing Technology

In January the 3DO Company demonstrated a new system, called the Interactive Multiplayer, based on a new graphics/animation architecture, which processes images at 50 times the speed of conventional personal computer and video-game machines, using Hollywood techniques to produce realistic, three-dimensional graphics and animation.

Designed to be a worldwide standard like VHS, 3DO's technology will be available in fall 1993 in a CD version which attaches to a television set and will offers interactivity options for adults and children. A network version is planned.

3DO says that with its Multiplayers, interactive software will have a higher level of realism. They will play music CDs, Photo CDs, and motion-video CDs. The technology is said to offer unprecedented processing speed to make on-screen objects look more realistic and allow interaction in real-time; the Multiplayer can animate up to 64 million pixels per second to help images move smoothly without any jerkiness or interruption. 16-bit systems operate at about one million pixels per second.

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Hypermedia

Continued from last month

What to Look for in a Hypermedia System

If you are serious about supporting multimedia/hypermedia applications, you should have the following minimum components:

- A relatively fast, powerful computer; for example, a Mac IIsi or an IBM-compatible 386SX/20, or better.
- Fast, high-resolution color video display with a refresh rate of 72MgH or better, and 256-color, VGA resolution.
- An 8-bit sound board with a MIDI interface and support for waveform audio. Sixteen-bit sound boards for CD-ROM quality audio are beginning to appear and will set the new standard.
- A large, fast hard disk, at least 80MB, and ideally as much as you can afford. Serious developers will require 300+MB hard drives.
- Some form of optical storage such as a CD-ROM drive or laser videodisc player, preferably both. Opt for the CD-ROM if you can afford only one, but be sure the "seek time" is less than 380ms.
- A mouse or other pointing device.

Be sure you have enough expansion slots or serial ports already installed for all of your peripherals; a mouse, modem, and printer may take as many as three serial ports or slots in addition to the ports needed for the CD-ROM drive and/or videodisc player.

Any hypermedia-capable system includes both hardware and software components. The most important considerations for hardware selection are processing speed, access to sources of digitized information, and options for displaying presentations. Processing speed depends primarily on four factors: the speed of the central processing unit (CPU); the bus (data path) width; the video display; and the access time of the mass storage drive.

Central Processing Unit. Processing the massive amounts of information used in a hypermedia presentation requires a fast CPU. [Chip prices have fallen so dramatically that now even 486 machines are quite inexpensive.]

Bus Width. The bus is the data path over which information is carried; the wider the path, the faster data can travel. Typical bus widths are 8-, 16-, and 32-bit. The Intel 80386SX CPU supports a 32-bit data path by segmenting data into linked 16-bit chunks; the 80386DX uses a true 32-bit path; hence, it is potentially faster if the software supports a 32-bit bus. At the present time, a 32-bit data path is preferable, but the majority of software and hardware enhancements for multimedia support a 16-bit data path. Consequently, the less expensive 386SX systems are satisfactory for presentations, although less satisfactory for development work.

Video Display. The higher the video resolution, the better the quality of the display, but generally the slower the video refresh rate. Full-motion video requires fast video processing and more video memory on the video-display controller card. A multimedia system needs a high-resolution video card with at least 1 megabyte of onboard video memory. IBM-compatible systems should use color VGA displays; the higher resolution SVGA is preferable.

Drive Access Time. An internal hard disk is still the fastest data source available with seek times as short as 15 milliseconds. CD-ROM drives, by contrast, have seek times between 300ms and 1000ms. To run many of the newer programs with full-motion video and sound from a CD-ROM drive, the drive seek time must be around 350ms or less. While it is possible to run full-motion video from your hard drive, unless you have a fast hard drive with a capacity of around 200 megabytes or more, it isn't practical. New data compression algorithms and hardware, with software such as Apple's *QuickTime*, will greatly improve the ability to use video from an internal drive.

Each of these features comes with a price. The better the system, the higher the price. Many of the features required for hypermedia applications are included in the new color Macintosh systems, making them attractive choices. However, much of the development work for multimedia and hypermedia applications has been done in the IBM environment, so there are many third-party enhancements and more software products for IBM-compatible PCs. The choice of a base system is a toss-up and will only become more complicated as special-purpose multimedia workstations enter the market. If you have an IBM-compatible 386, stay with your IBM compatibility; if you have an 030 Macintosh, stay with Apple. If you are buying a new system and want a plug-and-play package, the IBM PS/2 Ultimedia Model 57 appears to be a better choice than the comparable Tandy 4033 LX Multimedia model, because of the latter's poor CD-ROM drive performance. If you are not afraid to open the "box," and have a generous budget, opt for a high-end Macintosh with a 100+MB hard drive and plenty of expansion slots needed for all of the third-party interfaces and special purpose cards to enhance the basic system.

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In addition to the base system and monitor, you will need some special-purpose peripherals, notably some form of optical mass storage. Your best choice is CD-ROM. The Sony "jewel case" CD-ROM carrier for loading disks is widely copied by other manufacturers. Seek time appears to be the primary variable to be considered in CD-ROM player selection. An internal CD-ROM is somewhat more convenient for portability and slightly less expensive than an external drive, but significantly more difficult to replace.

CD-ROM players are on the verge of becoming commodity products and are available bundled with a wide array of CD-ROM-based products. Currently, an NEC player and seven CD-ROM disks are being sold as a bundle for $499 by mail order. If you are considering an NEC player, buy the NEC Intersect 73M or 83M model, currently the fastest drives available on the consumer market. Most CD-ROM manufacturers also supply interface cards and cables that allow their drives to connect to either IBM or Apple systems. Just be sure you order the one compatible with your system.

Pioneer has set the de facto standard for laser videodisc players; the CLD-V2400 is an attractive choice at a reasonable cost. It comes with a remote control unit and is compatible with the widely used 2-of-5 barcoding standard. An infrared barcode scanner and remote controller provide limited interactivity, which Pioneer calls Level 1.5. The 2400 also allows the user to play 12" and 8" laser videodiscs, 3" and 5" CD audio discs, and 5" CD video discs, making it the most flexible system on the market.

Video camcorders and videotape players must incorporate SIMPTE coding for multimedia production work to allow accurate frame recognition and easy editing. If you expect to use television images, either from live broadcasts or videotape, the video card must accept NTSC and PAL format input. Similarly, sound cards should accept and recognize MIDI coding. Developers of multimedia materials using images from videotape often find a system built around the Amiga computer to be the most cost-effective solution.

New hardware and software products useful for multimedia and hypermedia applications are arriving on the market daily. Hypermedia still remains more of an adventure than most classroom teachers will be willing to tackle. The technology push will continue to dominate the market for another three to five years until the hardware platform matures and stabilizes. Nevertheless, there are a number of outstanding hypermedia/multimedia applications in use in school districts. The three following examples provide a look at the variety or applications available.

Hypermedia and Multimedia Applications in the Classroom

Arts Videodisc

(excerpted from Schwartz, 1991, "The Power and Potential of Laser Videodisc Technology for Art Education in the 90s," *Art Education*, pp. 9-17.)

You want to enrich an art lesson by showing your class three or four artworks. You select these from among a possible 108,000 artworks which are included on your laser videodisc. Originals of these artworks can be found in the world's great museums and among private collections. This disc costs your school under $100, but would normally cost several hundred thousand dollars if the artworks contained were to be purchased as the typical commercially produced 35mm color slides.

After you discuss these selections, the equipment, consisting of a TV and a laser videodisc player, is moved to a corner of the art room where a small group of students examine other related artworks in the fully lighted room, while the remainder of the class continues with their studio activities. In the afternoon, individual students will use the published catalog accompanying the disc to retrieve their own choices of artworks from the disc to prepare a written report and audio-visual presentation to their class. Later in the week you will hook up a computer to this equipment to present to your entire class an episode consisting of still images of artworks, film clips, narration, text, and music. You have created this episode by programming various resources with a simple computer authoring system using HyperCard. A number of students who are away on a field trip will be able to view and interact with this episode at their own pace upon returning to your class.

Alberta Education is the only provincial or state department of education in North America that, to date, has produced a laser videodisc to assist teachers in implementing new school art programs. *Sightlines: A Visual Encyclopedia for the Arts, Sciences, and Humanities* includes original and copyrighted materials as a resource for teaching art, dance, social studies, sciences, language arts, and other subjects. As a database, *Sightlines* provides a wealth of information that can be used as a primary component in a presentation, as a complement or supplement to other media, for personalized interactive use, or as research and reference material.

Side One (CAV format) contains 26,000 images consisting of world art, Canadian art, Alberta art, student art, earth and earth sciences, flora and fauna, people and the manufactured environment, space (including outer space, microscopic space and molecular models), and photographic processes.

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Side Two (CLV format) contains running segments with sound consisting of film, video, and slide/tape on several subjects along with the well-known BBC film series *Ways of Seeing* by John Berger.

The disc sells for approximately $75 to Alberta schools and has a companion published access catalog (about the size of a city telephone directory) that permits retrieval of disc materials through cross-referenced documentation. A separate HyperCard stack, available commercially, has been developed to permit interactive instructional use. For additional information, contact the Director, Curriculum Support Branch, Alberta Education, 11160 Jasper Avenue, Edmonton, Alberta T5K 0L2, Canada, telephone 403 422-4872. ❑

Books

Golden

Want to feel old? This is the 50th Anniversary of the Little Golden Books and twelve of them are being reissued, including the all-time favorite, *The Poky Little Puppy* (14 million copies).

Originally priced at 25 cents each—compared to $3 and $4 for most children's books then—a boxed set of twelve (six of the original and six classics) will now go for $19.95. Single copies still go for under a buck.

Helping Handbook

Handbook for Principals and Teachers: A Collaborative Approach for Effective Involvement of Volunteers is a useful guide which provides training models on how to involve volunteers for maximum contribution with minimum stress. $15 from the National Association of Partners in Education, 209 Madison Street, Suite 401, Alexandria, Virginia 22314. Telephone 703 836-4880.

Mining the Money Sources

The $6 price for the 1993-4 edition of *The Ambitious Student's Guide to Financial Aid* could be a very good investment. Written by Ann and Robert Leider, it's a no-nonsense look at how and where the ambitious student can get help. 117 pp., $6 paper, Octameron Press, P. O. Box 2748, Alexandra, Virginia 22301.

Voice of the Teacher

Teachers: The Missing Voice in Educational Policy and Practice, by Marilyn M. Cohn and Robert B. Rottkamp. Frustration and struggle in teachers' own words. 358 pp., $19.95 paper, State University of New York Press, State University Plaza, Albany, New York 12246.

Distance Learning Sourcebook

If Distance Learning seemeth but a distant dream, this book with the snappy title *The U.S. Distance Learning Association Funding Source Book*, might be right for you. Authoritative and complete, it discusses developments in distance learning and telecommunications; and, most importantly, lists funding sources for projects.

The call is free: 800 829-3400; the book is not: $39.95.

Yearbooks Dying

According to Jostens, the largest producer of school yearbooks, technology and ennui are killing off the business. Videotapes are becoming a preferred medium in some schools, and desktop publishing by students is doing away with the need for professionals. Also, magazine formats seem to have more appeal to students than once-a-year bound volumes.

U.S. Remainders Official Publications

School districts can get official government books at low cost under a new program established to sell surplus publications to the highest bidder. These books include government publications in international relations, commerce, law, space exploration, and history.

The scope is extremely varied and includes official documents of U.S. treaties and relations with other countries, reports to the President from many agencies, and titles designed for the Foreign Service to help develop skills in foreign languages.

For more information and to be placed on the bid list, call Joel A. Hettger at 202 512-0937 or write Surplus Publications, Materials Management Service, U.S. Government Printing Office, Washington, D.C. 20401.

It's Not Just Killing Zomboids

Everything you always wanted to know but were too bored to ask about why kids play video games is contained in a new book by Eugene Provenzo from Harvard University Press.

Some highlights: Kids at arcades spend less than half their time playing; the rest is spent just hanging out. Males dominate video games, both as players and characters. Of 100 games analyzed, 92 had no female roles, six had "damosels in distress," and only two had female leads. If girls go to arcades, it is usually to admire their boyfriends' prowess.

Violence is the prime ingredient of most video games and there is a definite relation between the games and short-term increased aggression on the part of some players. However, there is little evidence that playing contributes to long-term deviant behavior.

As to why they are so hypnotic, no one knows for sure. Part of the appeal may be that there are clear goals, variable difficulty, randomness and surprises, and constructive feedback – plus instantaneous measurement of performance. ❑

STATS

Parents Important

Young people from single-parent families or stepfamiles are two to three times more likely to have had emotional or behavioral problems than those who have had both of their biological parents present in the home. In past 30 years, the divorce rate has tripled; out-of-wedlock births have quadrupled even as fertility has dropped almost 50%; and parents spend ever less and less time with children.

French Windows

European sales of North American software increased 33% in the third quarter of 1992 to a total of $380 million, a 20% growth rate for the year. Windows applications accounted for 58% of sales, while plain DOS applications declined to 32%. Macintosh held steady with a pitiable 8%. By contrast, Windows accounted for 32% of third quarter sales in North America, compared to 46% for DOS and 17% for Macintosh.

States Soaked

According to the Census Bureau, on average states provide 48% of support to elementary and secondary schools, with county and city governments a close second at 47%. Federal support is a vanishing third with 6%. Amounts ranged considerably, however, with $9 out of every $10 coming from local financial support in the District of Columbia, compared to $1 of every $25 in Hawaii.

Big Spenders

The states with the five highest per capita incomes in 1991 and their ranking by percentage of income spent on education: 1) Connecticut, 45th; 2) New Jersey, 39th; 3) New York, 10th; 4) Maryland, 47th; 5) District of Columbia, 40th.

The states with the five lowest per capita incomes in 1991 and their ranking by percentage of income spent on education: 50) Mississippi, 13th; 49) West Virginia, 9th; 48) Utah, 5th; 47) Arkansas, home of the latest Education President, 30th; and 46) New Mexico, 6th.

Many Kids

As U.S. population increases from the current 255 million to a projected 383 million by the year 2050, the estimated number of Americans under age 18 will increase by 5 million by the year 2000 to a total of 70 million; and this will increase an additional 18 million by 2050 to almost 90 million.

By the year 2000, the count of elementary school-age children will reach 32 million (up 4 million), with 44 million by 2050. High-school population will be up to 17 million by 2005 and nearly 20 million by 2050. The 18-21 age group, which will enter college, workforce, or the military, is expected to reach an all-time high of 17.8 million by 2010. – *U.S. Census Bureau.*

Achievers Imperilled

Alarming stats from survey by *Who's Who Among American High School Students* of students with A and B averages, 97% of whom intend to go to college: 31% have considered suicide; 40% have reported incidents of violence in their school; 25% are sexually active; and 41% would engage in sexual intercourse without protection.

Principals Depart

For those who consider administrators one of the barriers to educational reform, the news that some 25% of the nation's 76,000 secondary school principals have retired in the last five years may seem like an opportunity to change this traditional bastion, whose minions are mostly drawn from physical education departments (an estimated 70% nationally).

According to the National Association of Secondary School Principals, normal attrition coupled with "golden handshakes" to speed early retirement, have caused the departure.

Mediocre Safeguarded

A recent Gallup Poll indicates three in five Americans (61%) feel schools should do more to challenge the smarter student.

However, 77% don't want to lose support for the slow learners and this included parents of gifted children. Another survey, this by the National Association for Gifted Children, found 84% would support funding for the gifted as long as it did not reduce support for average and slow children. ❑

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The Newsletter of Software and Systems for Learning

Volume 19, Number 6 March 1993

Electronic Superhighway Needed Now!

When history looks back on the Clinton administration, one of its most important achievements may well be the building of the "electronic superhighway" for data. If it happens—and it must—it will also be a tribute to the single-mindedness of Vice President Gore, who was championing its construction during his days in Congress. (Interestingly, it was his father who was behind the national interstate system of superhighways of the concrete and macadam variety.) Actually, an information highway, called Internet, already exists.

National priorities being what they are, the Department of Defense put up the original money in the 1970s for an experimental network called Arapanet, designed to survive such large-scale disasters as a nuclear attack.

In the late 1980s, the National Science Foundation, building on lessons learned from Arapanet, developed Internet, a prototype network to link colleges and universities to supercomputer sites and to one another. Even though Internet is a difficult system, it is estimated that a million people worldwide make use of it daily.

Efforts are underway to make Internet more accessible by treating it as the world's largest library. Texas, Colorado, and Virginia are beginning to make an effort to link schools to the network. Some want to promote its electronic-mail potential. Others are concerned that the system could soon be overloaded.

Indeed, Internet has grown exponentially into a matrix of more than 9,000 interlocking networks working over (slow) telephone lines in more than 100 countries.

Perhaps the prime virtue of Internet for most educators—the network is considered rather primitive in terms of today's technologies—is that it shows what can and must be done. A national superhighway for data—**all** data—would do what the transcontinental railroad did for the flow of goods more than a century ago and the interstate highway system did in the past fifty years.

With such a network, not only schools but entire communities—indeed, the entire nation—would have access to all information. Everything can be digitized—all educational material, feature-length movies, complex blueprints, all known medical information, music, games, and other entertainment. Everything.

The ramifications of such an electronic superhighway would create a revolution in how we live far greater than the invention of the automobile or the transistor. Health care, to pick but one area, would become immensely more efficient, since X rays and other images would be instantly available for diagnosis by faraway specialists. Scientists and corporations would soon learn to use it as an electronic blackboard.

The data highway can be expected to change the way manufacturers work with customers and suppliers through reducing inventories and speeding up product design in response to accurate analysis of consumer needs. It is also expected to create entirely new industries.

One big problem is that the project might get talked to death. The battle lines are forming already. Some want it to be government-sponsored; some want it in the private sector. Vice President Gore, who can be expected to be the voice of the Clinton Administration in this area, believes the government should build the electronic superhighway but have it operated as a

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SCISS/TESS Update
Begins on Page 5

The Latest Software
for Teachers
and Administrators
from *TESS*!

Five Big Pages Saturated
with Program Data and Descriptions

Editorial

On Productivity and Innovation

As we go to press, there are numerous experts predicting the '90s may be a growth decade...If.

The "if" seems to be whether or not we are able to integrate our technological innovations—and their potential to increase productivity—into our society. The reasoning is that it takes longer for us to get used to new technology than optimists might hope. (No argument from we who wait impatiently for education to join the Information Age.)

An earlier period of intense innovation, for example, the 1860s to 1880s (telephone, typewriter, electric light and power) did not affect productivity until the late 1890s and early 1900s.

In a somewhat parallel fashion, the trillion dollars which industry has invested in computers and other high-tech equipment, is the engine which is propelling us out of the recession. Earlier this year, no less a guru than Alan Greenspan told the Joint Economic Committee of Congress: "A new synergy of hardware and software applicatons may finally be showing through in a significant increase in labor productivity."

A key indicator is that, for the first time, productivity has increased without an increase in employment. Also, profits have made a strong comeback without any similar leap in sales; and this is as true in the service area as in manufacturing.

It seems to us that productivity is going to be a key measurement for everyone—including educators—for the rest of the decade and beyond. As noted elsewhere in this issue, only 25% of adults have children going to school; that other 75% who are helping to pay the bill have begun to question the lagging productivity in education.

Perhaps this is a good time to recall the quote of Joe Lewis before his title bout with a fighter named Conn. "He can run," said the slow-talking Lewis, "but he can't hide."

Earl. L. Fultz
Editor & Publisher

....and other opinions

About a decade ago, while I was living in Oxford, banks began installing automatic cash machines, the type now found on every streetcorner. But the first of these were placed in the bank lobbies themselves. Anyone familiar with English banking hours will realize at once that such a strategy rendered the machines essentially worthless. Some machines eventually were installed outdoors, but they shut down at 9 p.m. daily and completely on Sundays, on the theory that computers must observe the Sabbath. It was a classic case of a technological society that didn't know how to use technology.

– Tony Rothman, "Reader Rip-Off," *The New Republic*.

Public schools started to go wrong as bureaucracies built up and control fell under a large, central administration. Today we think of schools in some of the same ways we think of hospitals or prisons, as buildings housing scores of people but with only a very limited connection to the world outside their walls."

– David Guterson, *Family Matters: Why Homeschooling Make Sense*.

The change in design from piston to jet-powered aircraft engines is a close analogy to what we need to do in education. Instead of admitting, as engine designers did, that the old design limited what they could do, we keep trying to improve a design that cannot be improved.

– William Glasser, M.D., California psychiatrist and education authority, *The Quality School*.

Education today involves learning how to unlearn. It is probable that today's workers will change jobs several times in their lifetime, so they know more, and forget more, than any worker in history.

– Carol Orlock, *The Goddess Letters*.

I basically believe my job as president is to try to adjust America in good ways so that we can win in the 21st Century. We live in an era of constant change and America's biggest problem is that for too many people, change is an enemy, not a friend.

– President Clinton, to employees at Silicon Graphics, a high-tech firm near San Jose.

In the NEWS

9:45: Raise Taxes

Here's the Endorsement of the Year: we learn that President Clinton uses *Ontime for Windows* to lay out the schedule for his hurly-burly workdays. Rumor has it, though, that *Lotus Organizer* is more intuitive.

Business from Disaster

When the explosion rocked the World Trade Center on February 26th, the stock of SunGard Data Systems shot up: the Wayne, New Jersey firm provides disaster-recovery computer services and your bad news is their good news. SunGard's stock also rose in 1989 after the San Francisco earthquake, as well as after the Chicago flood last year, along with the shares of a competitor, Comdisco of Rosemont, Illinois.

Just as Captain Kirk was always beamed off the enemy vessel just before it exploded, SunGard promises that if catastrophe wrecks a company's mainframe computer, it will move the software to its own computers and graft the company's telecommunications network onto its own.

Bogus Windows 3.1 Seized in Raids

Microsoft announced on March 2nd that recent government raids in California had uncovered large amounts of counterfeit Microsoft MS-DOS 5 and Windows 3.1 operating systems. The busts, in San Jose on January 20, 21, and February 3, and in Concord on February 18, had yielded counterfeit items produced under the trade names OEM, Spring Circle, and BTI. The raids involved the local police departments, the FBI, and the IRS, "with assistance" from Microsoft counsel and investigators; giving some idea of the software behemoth's awesome influence and ruthless clout.

The first in the series of raids came down on a San Jose printing company believed responsible for the illegal manufacture and duplication of several versions of OEM counterfeit DOS 5.0 and Windows 3.1. Later locations raided included additional counterfeit duplication, production, and storage sites, as well as the homes of at least two of the principals involved in the counterfeiting. The third and final seizure came at JT Litho in Concord, where some 18 tons of counterfeit manuals, disks, product components, business records and artwork was seized.

Microsoft pointed out that counterfeit products are often defective and can carry viruses. Users should be on the alert for possible counterfeit versions of Microsoft products sold on a standalone basis. When in doubt, users can call the Microsoft Piracy Hotline, whose irritating number is 800 NOCOPYN.

Academe to Share Woes of Big Blue

When mammoth corporations such as IBM and Digital start retrenching, among the first to feel it are university programs which had come to depend on corporate largesse. It's not just the pullback from grants of equipment and R&D funds. Whereas IBM once donated two dollars for every one employee dollar donated, that has now been trimmed to one-to-one; while in a program in which an employee donation of one dollar was matched with five dollars of equipment, the ratio has been trimmed to one to three.

Buckeye Bell Strings Fiber-Op for Vid Net

Ohio Bell has announced that it will use fiber-optic cable to create a two-way interactive video system that will link four career education centers in Columbus with other educational resources in the city.

The Columbus Distance Learning Project is part of Project BEST: Better Education Through Telecommunications. Project BEST currently uses two satellite dishes to receive training programs and information; the fiber-optic network will allow the data to be shared among BEST participants and be more accessible to students.

Many classes cannot be offered at some of the career centers because of low attendance; however, with two-way interactive courses, one teacher can lead several classes at remote sites. Thus, more students will have access to more classes and information. In addition, Columbus State Community College can now provide basic and advanced courses to career-center students, and Franklin University can extend its business and management courses to all the sites.

Ohio Bell will invest about $656,000 in the project and will work with the centers and institutions to develop training programs. Stephen H. Eibling, Ohio Bell vice president of engineering and support services, said Ohio Bell is committed to improving education in Ohio by encouraging new uses of technology.

For Ohio, Eibling said, the telecommunications network holds great promise in the form of advancements in education, health care, and economic development. An advanced telecommunications network is the link to an improved quality of life for every Ohioan, he said.

For more information you can ring Mary Lou Ringle of Ohio Bell at 216 822-2311.

Not Just Geeks Anymore

The high-tech services industry, which accounts for some 800,000 jobs worldwide (about 500,000 in the U.S.) is one industry that shows a worldwide growth pattern – at least 12% annually. Executives in this growing field say that the scope of their business has changed dramatically in the past ten years, and their requirements for personnel have changed accordingly.

Many of the executives are members of the Association For Services Management International, a global professional association with some 6,000 executive and managerial members. In a recent issue of the *AFSMI Professional Journal*, industry executives gave their views on the educational requirements in the years ahead. They suggested that the industry will be looking for entry-level employees whose skills go beyond technical training.

Dean Beckwith, an offier of ROLM, a Siemens sub in Norwalk, Connecticut, said, "Skills are changing. Twenty years ago, we had mechanical skills. Ten years ago,

continued on following page

we had electronic skills. Today, managers and technicians need communication skills."

Nicholas Jarsulic, managing director, Kepner-Tregoe of Princeton, New Jersey: "The most important trend we see for the future is the growing gap between workers' skills and the growing complexity of technology. It is no secret that the U.S. faces an education crisis. Declining test scores and poor preparation for the workplace point to a diminished ability to compete effectively.

"Aside from the concerns about subject content areas, our schools are clearly not teaching students a more marketable skill – the ability to think incisively, individually and in groups, to solve problems and resolve organizational issues. There are signs of school curricula improvement. A number of innovative changes are being advocated. However, it will take time to implement these structural changes and longer for them to bear fruit.

"Also impacting the skill set of workers is the reduction in military training...long a provider of high-tech training for future service workers. This indicates even fewer skilled workers will be entering the high-tech services area."

Rawlin A. "Pete" Fairbaugh, director of Graduate Business Programs and Associate Professor, Sacred Heart University, Fairfield, Connecticut: "The evidence that I have from several years in service with a Fortune 500 company and from directing and teaching in a graduate business program is strong enough for me to endorse the need for management training for technical personnel. Courses in basic management, behavior leadership, ethics, change and conflict resolution, human resource and management could assist the technician with eventual people problems in management."

What's needed, he says, "Is a basic business education in finance, accounting, economics, budgeting, marketing and international business."

Space U. Lands in Strasbourg

Strasbourg, in the Alsace region of France, has been selected as the site for the Central Campus of the International Space University. Toronto and Kitakyushu, Japan had also been on the short list. Strasbourg as the site had been promoted by France, European industry, and the universities of the Rhine region in Germany and Switzerland.

The ISU will be holding its 1993 Summer Session at the University of Alabama in Huntsville, and intends to maintain its presence in the United States through the establishment of the headquarters of its Summer Session operations in the Washington, D.C. area.

The ISU plans a Permanent Campus system (the Central and Affiliate Campuses) as a global network of facilities for graduate-level multidisciplinary and international space education and research to be linked by ISUnet, an electronic information and communications network.

Students at the ISU Central Campus will follow a one-year Master of Space Studies (MSS) degree program, embracing all space-related fields. MSS graduates may continue their studies at ISU Affiliate Campuses at leading space universities and research centers around the world.

Founded in 1987, the ISU is committed to the international cooperative development of space and for the last five years has held Summer Sessions at universities and research centers in the United States, France, Canada and Japan.

For more data, call Goldie M. Eckl of the International Space University at 617 354-1987.

Japan's Yen for Learning

Japan's version of a meritocratic society makes entrance into the country's top 475 universities essential, since only graduates of these schools are considered first-rate by corporate employers.

The resulting scramble has created "cram schools" in which parents pay more than $200 a month per child for supplementary education five and a half days a week (the half is on Sunday).

While public-school teachers earn on average the equivalent of $30,000 and get a raise each year until mandatory retirement at sixty, cram-school teachers with a reputation can make up to $400,000 a year. Without a rep, however, a cram teacher may make far less than public-school teachers; and even top guns—who are monitored like star athletes—can see their careers nosedive when fashions change.

Education is considered a lifelong pursuit in Japan. All major corporations run their own colleges for employees and constantly upgrade their education at all levels. With 250,000 executives living overseas, English classes are particularly important, and it is not uncommon for executives to attend language schools at the end of a 12-hour workday.

Tutoring – Growth Industry in the U.S.?

Sylvan Systems, America's largest chain of tutoring franchises, is predicting mammoth growth, estimating a tenfold expansion in the next five years to a billion-dollar company. The firm's stated objective is to search out the causes of the students' learning problems, rather than the traditional approach of focusing on test preparation.

Japan's Kumon Institute of Education Company has already landed.

Known in Japan as the McDonald's of cram schools, it opened its first school in Los Angeles in 1983 and has already garnered 77,000 American students. Their stated goal is 2 million students.

Parents generally have good things to say about tutoring, reporting higher morale as well as higher grades.

Signs of the Times

The school board in East Palo Alto (California) is exploring the possibility of providing poor students free accident and life insurance to cover burial expenses. Last year the municipality's 42 murders among a population of 23,350 gave it the highest murder rate in the U.S. Meanwhile, students in Westlake, also in California, are being taught how to duck for cover when a drive-by shooting starts.

¡Habla Ingles!

A recent survey of Hispanic parents showed them highly supportive of bilingual education, but especially so if the emphasis is on learning English. According to the Latino National Political Survey, two-thirds of those born in the U.S. considered their English better than their Spanish

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THE STATES CONSORTIUM FOR IMPROVING SOFTWARE SELECTION
SCISS
TESS
THE EDUCATIONAL SOFTWARE SELECTOR
UPDATE

TESS Update

Copies of the newest release of the TESS database are now being rushed to members of the States Consortium for Improving Software Selection. The February 1993 winter update provides information on 766 new educational software products, bringing the total of products in the full database to 10,756.

The products of 118 new suppliers were added in this update, raising the total of companies with products in TESS to 1,060.

As part of the updating process, TESS staff contacted the more than 1,000 suppliers, including extensive telephone follow-up when necessary, in order to identify new products and to determine which products are no longer commercially available. As a result, about 85% of the program and supplier articles were verified or updated. The remainder could not be updated because either the supplier failed to respond, discontinued producing the particular program, or could not be located. Articles not updated are retained in the database in an "archived" status, which allows schools to use TESS to catalog and find information about software products which they may already own.

With the addition of 430 new review citations, the TESS database now contains 10,233 total review citations, from more than 40 respected review sources. In all, 503 titles are designated "highly rated."

Latest and Best Too

Accompanying the release of the newly-updated full TESS database is the abridged version, The Latest and Best of TESS. This version contains information on 2,195 products published by 293 suppliers. Of these products, 474 are designated "highly rated."

MacTESS & PC-TESS Offer More

Expansion of the product-description field in the new February 1993 TESS update means users get even more valuable information about educational software products. Additionally, the information contained in supplier reports has been increased significantly, including information related to site licenses, lab packs, networking, etc.

Owned product records can now be merged into the updated database with ease, so that users who have cataloged their school's software in the previous version need not re-flag those products in the new update.

Among the other enhancements to the MacTESS and PC-TESS databases is the capability to store the programs in a folder or directory separate from the data files. By so doing, a user can access either full TESS or Latest and Best data from a single access point. This facility also saves disk storage space.

Special Note to TESS Users

Please be advised that the parameter originally labelled "Curriculum Function" has been changed to "Target Audience." This renaming was done better to reflect types of users.

Software and Technology

Public-Domain Software

Schools, agencies, and parents working with special-needs children can now obtain public-domain programs at low cost from Technology for Language and Learning, a not-for-profit organization in East Rockaway, New York.

Programs are appropriate for those with language impairments, aphasia, learning disabilities, physical handicaps, and visual and hearing impairments. Power Pad, Touch Window, Echo synthesizer and single-switch devices are supported. Platforms are Apple IIe, IIgs, and emulation card-equipped Mac LC.

No One Does It Better

The 1993 educational services catalogue from National Geographic is top-heavy with visual media and gives barely a nod to computers and multimedia.

As might be expected, NG has a hefty 260 titles on film and video, 231 filmstrips, an impressive 84 TV specials – but only 28 titles of software/multimedia. The catalogue lists the same number of Wonder of Learning Kits, and 38 books.

For sheer visual impact, no one can touch Geographic and they are making it easier to buy with discounts reminiscent of post-Xmas shopping malls: 25% on orders of $1,000 or more; 67% on multiple copies of videos; and an extra 10% when buying a complete set of products. No one ever got fired for choosing National Geographic. Call 800 368-2728.

CD-ROM World

Indicative of CD-ROM growth is that *CD-ROM World*, billed as the only monthly magazine in the field, is now being distributed through selected newsstands. Six to eight new releases are reviewed each month for content and ease of use.

continued on following page

Also available is an annual database directory of some 3,600 CD-ROM titles.

More info: Alan Meckler at 203 226-6967.

Buy One Get One Free

While you might quibble over the name, *Aesopolis*, a new interactive CD-ROM from Quantum Leap based on Aesop's fables, you can't argue with the deal. Buy *Aesopolis* for $99 and you can get any of Quantum's other CD-ROMs, most of them higher priced, for free. Included are System 7 Super CD for Macintosh and MEGA-ROM, which has more than 10,000 shareware and public domain programs, art files, *QuickTime* movies, sounds, utilities, games, fonts. Quantum Leap Technologies, 1399 SE 9th Avenue, Hialeha, Florida 33010-5907. Call 800 762-2877.

Not Too Late

If you missed Black History Month, Public Media Home Video can help you catch up with an array of videos on important African-Americans from writer Toni Morrison, to a seven-hour examination of African-American musical legacy; also Alvin Ailey, Leontyne Price, an eight-part cultural walk through the history of Africa, and much more. Call 800 262-8600.

Optical Polishes Science Windows

The first Update on *Windows on Science*, Optical Data's superior videodisc series, features information about nice science topics on two single-sided, eight-inch videodiscs. The new program documents the oil-spill cleanup of Prince William Sound, the unearthing in Montana of the most complete Tyrannosaurus Rex skeleton yet discovered, the zebra mussel invasion of the Great Lakes, the eruption of Mount Pinatubo in the Philippines, images of Venus from the Magellan spacecraft, and lesser stories on rainforest research and a new impact crater found in the Yucatan.

The complete *Windows on Science* program for grades one through six includes 11 videodiscs and more than 6,000 pages of print materials, including teacher lesson plans and student hands-on activities. The set is now used as a "textbook" in 65% of the elementary schools in Texas, chosen after a head-to-head shoot-out with traditional textbooks.

Laser Mag from TV Station

WGBH, the ever-creative PBS affiliate in Boston, has a new one: a magazine written by students in 21 high schools (with 16 affiliate stations cooperating) which will be reproduced on laserdisc.

While the idea was originally expected to appeal to the same students who worked on the school newspaper, coordinators report that math, computer science, and art students have also responded enthusiastically. This, they point out, is not the usual mix of students.

Oh yes, there will also be a print version.

Some Like It Hot

In an age of instant everything, the "hot line" has emerged as a transitional technology while we wait for national and local information "highways."

For those who want instant information on grammar and spelling, there is now a catalog of grammar hotlines available. Send SASE to Grammar Hotline Directory, Tidewater Community College, 1700 College Crescent, Virginia Beach, Virginia 23456.

Wagner Festival

Roger, not Richard. The creator of *HyperStudio* ("the multimedia softare for multitalented minds") is holding the first *HyperStudio* Festival July 8-10 in El Cajon. Attendees will have the opportunity for in-depth exploration of multimedia hardware options: scanners, video digitizers, laserdisc players, still-video camera, MIDI instruments, VCRs – the whole spectrum.

Roger Wagner Publishing's fundamental concept is that multimedia "is for personal creativity and expression, not just a way to repackage encyclopedias." Call 800 421-6526; fax 619 442-0525.

Compensating for Improvement

Interactive voice-response won't necessarily make computer use simpler for everyone, and AT&T has announced plans to make its IVR systems accessible to callers with hearing impairments – as long as they have access to TTY/TDD machines. The company said the move will help businesses and government agencies comply with the Americans with Disabilities Act of 1990.

AT&T will use a patented technology developed by DiRAD Technologies to work with its CONVERSANT Voice Information System to give hearing-disabled callers access to a wide range of automated information services via TTY/TDD terminals; in other words, to get back to where you can use a keyboard, they have had circumvent the advanced technology and by using even more advanced technology.

The CONVERSANT system enables callers to use their telephones to transact business, such as obtaining bank or utility account balances, placing a catalog order, or getting a student's homework assignment. Callers typically respond to audio prompts by pressing keys on a telephone's touch-tone pad or speaking responses which are recognized by the system.

DiRAD's Ultra-Silent processing capability enables callers to transact business or receive information as text on their TTY terminals or specially-configured personal computers; the arrangement works simultaneously with the standard voice applications on the system.

Travel services, accounting firms, insurance companies, banks, hospitals, places of recreation and entertainment and other public accommodations can use this application to offer 24-hour access to services. Both voice and TTY callers can have equal access to place orders, make account inquiries, and request materials.

continued on following page

However, of the 22 million Americans with hearing impairments, only two to three million use TTY devices. And what should people with speech but not hearing impairments do? Move to Russia.

More info: Marilyn Dunsworth of AT&T Business Communications Systems at 908 658-2089; or Laura Williams of same at 908 658-2604.

Apple Launches Six New Macs

Along with the 10-millionth Macintosh produced since 1984—displayed at the MacWorld show in Tokyo—Apple also introduced 6 new Mac models and two new laser printers.

While the premium price for Apples over IBMs and compatibles of comparable performance continues, the margin is definitely shrinking as Apple competes more aggressively to hold its position in the market. Apple and IBM have roughly equal shares of the microcomputer business, about 14% each.

The new Laserwriters are listed at $819 and $1,000, Apple's least expensive laser printers; made possible, the company says, by the use of a new printer engine from Fuji-Xerox.

Power to the PC

Anything electronic needs power protection, especially from spikes and interruption, and Best Power Technology of Necedah, Wisconsin has made this their specialty. Starting in 1983 with its first UPS (Uniterruptible Power System), they are now the world's largest manufacturer of single-phase UPSs, and produce a full line of power-protection devices. Call 800 356-5794.

Can You Copy the Video?

As noted last month, the Software Publishers Association, following the adage that "as the twig is bent," etc., is using rap and hip-hop in an 8-minute video to warn 4th to 8th graders against stealing intellectual property. Entitled *Don't Copy That Floppy*, the videotape uses segments from top-selling software and brief interviews with programmers who discuss why copyright laws protect their work. Oddly, the SPA expects you to pay $10 for the honor of using their promotional materials. Order from: SPA Education Department, Suite 700, 1730 M Street, N.W, Suite 700, Washington, D.C. 20036.

Scarecrow, Call Your Office

Word comes from Intel, the big chip maker, that it has begun shipping a computer chip that imitates the circuitry of the human brain. Researchers have been experimenting with systems that simulate "biological computers" for more than a decade without any clear idea of the market to be served. It is expected that artificial neural networks will allow computers to learn and recognize objects and speech in some of the same ways as the human brain.

Developed in partnership with Nestor, Inc., of Providence, Rhode Island, from technology initially developed by Intel's memory division, it took only $1.6 million of DARPA (Pentagon) money, $1.1 million from Intel, and $400,000 from Nestor. Each chip, known as the Ni1000, contains 3.7 million transistors, has more than 350KB of memory, and is capable of performing 20 billion simple operations a second, which compares favorably with todays most powerful supercomputers.

Open Sesame

Forget keyboards, mice, and spoken commands for controlling computers: research shows you can tell a computer what to do just by thinking it.

The New York State Department of Health has developed a system that allows the user to move a cursor up and down or side to side merely by thinking it.

Psychologists at the University of Illinois have a way to type by spelling out the words in theirr minds, slowly to be sure, a little more than two characters a minute.

Nippon Telegraph and Telephone Corporation reports its researchers have worked out a way to tell which direction a person will move a joystick with a fairly high degree of accuracy. A similar project is well advanced at Graz University of Technology in Austria. Fujitsu, Japan's largest computer company, is also developing ways to control a computer merely by thinking about what one wants it to do.

Early attempts in "biocybernetics" occurred in 1970 and were financed by (who else?) the Department of Defease with the hope a computer could determine the state of mind of a fighter pilot and assist him in flying the plane. It didn't work but has led some to question whether technology can be developed which will "read minds."

Experts say the big challenge is just to determine whether the thought waves say "yes" or "no," since there are many other activities and signals coming from the brain at any moment. The New York State group got around that by teaching the brain to emit signals that were easily understood by the computer.

One thing certain to keep use down is the cost, about a million dollars worth of equipment plus a special magnetically shielded room – and it doesn't look like technology that will be mass produced any time soon.

For Whom the Dell Toils

Dell Computer, the upstart company from Texas, has been chosen by Jostens Learning to provide 386 and 486 computers specifically designed for education use. The machine will run all Jostens products that currently run on IBM or Tandy and are totally DOS compatible. A Jostens executive noted that they are making this move to help schools with technology decisions, leaving the educators time to focus on education.

MacBlue?

IBM & Apple are involved in a joint venture the object of which is to bridge the gap between their different computing standards. That progress is being made can be shown by the introduction of a software program that allows Macintoshes to work on IBM-based networks.

Apple's new emulation software package enables Macintosh desktops and notebooks to behave like IBM terminals and access about 20,000 applications available for IBM systems. ❑

The Latest of TESS Programs *(Chiefly for the Macintosh)*

Social Science

from American to World

American History
Computer Vistas Unlimited
Social Sciences: History; United States History
Grades 7-College
Includes more than 400 photographs, 150 graphics, 100 maps, 50 historical documents, original sound recordings, and presidential addresses. Covers American Indians to Desert Storm, including Immigration, Technology, Women in America, and more. Interactive software enables students to access information in many ways and to learn at their own pace. CD-ROM version requires CD-ROM drive.
Macintosh 512E, on CD-ROM $79.95, on disk $49.95.

American History Pack
Tom Snyder Productions
Social Sciences: History; United States History
Grades 5-12
A social studies data disk. Covers all major units in American history, including Colonial Times, World Wars I and II, the Cold War, and many others. To be used with *MacTimeLiner* by Tom Snyder Productions. Network version available.
Macintosh 512E, $19.95.

Atlas Explorer
Queue
Social Sciences: Basic Skills; Map and Globe
Grades 4-12
Detailed maps with pull-down menus take students from continents to countries to states and provinces. Students learn about population, area, language, capital cities, and currencies, as well as geographic and political boundaries. The built-in tutorial lets students move at their own pace. Quizzes students on any location. Keeps records.
Apple II+/IIe/IIc/IIgs, Macintosh 512E, IBM PC and compatibles, $49.95.

Atlas Pro
Strategic Mapping
Social Sciences: Geography
Grades 7-College
A geographic data analysis and presentation program. Features a built-in spreadsheet that links database files to maps (down to the street level) and includes query features that allow users to ask questions, and get answers, related to database or map information. User can enter data directly into the spreadsheet, input ASCII data from any of several database programs, or create live links to external databases and spreadsheets via *System 7*. Gives users the ability to create a wide variety of presentation maps that reveal important geographic relationships and bring out the meaning in their data. *System 7* users can use *QuickTime* to attach movies to map features. Maps can be saved as PICT or Paint files for further modification and used in drawing, painting, presentation, spreadsheet, and word processing programs. Contact company for volume pricing. Tutorial included.
Macintosh Plus, $595.

Azimuth
Graphsoft
Comprehensive: Generalized Tool Programs; Graphics Generators
Grades 7-College
A non-clip-art world-mapping program. Users draw global views of all the countries in the world and all the states in the United States from any distance or angle in nine mapping projections or in 3-D perspective mode. Lets users produce maps of the world or any portion of it. Includes nine map projections, which can be placed on different layers and overlaid for comparison. Further, any line, circle, symbol, text, or polygon entered into the base map layer becomes data that can be projected onto other map layers. Symbols, objects, and text can be used to edit the base map, then plotted onto an "illustration" layer for the further editing needed to produce a finished map. Maps may be saved as PICT or EPS files and ported into any program that reads PICT or EPS. Requires separate plotter driver.
Macintosh Plus, $395.

The CIA World Factbook
Quanta Press
Social Sciences
Grades 5-College
A database of the government's own *World Almanac* of facts and figures for 249 countries and territories worldwide. Topics include geography, government, economics, communications, military, the environment, illicit drugs, claims, treaties, and more. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $99.

Code: EUROPE!
Compu-Teach
Social Sciences: Geography
Grades 6-11
Students learn about history, geogaphy, trade, arts, and culture as they solve crimes across Europe. In this game students gain knowledge of people, places, and events while earning promotions from agent to director. Network version available.
Macintosh Plus, $59.95.

Communism and the Cold War
Optical Data
Social Sciences: History; World History
Grades 4-College
Covers the history and politics behind the Cold War and events that led up to the collapse of communism. Puts the U.S.-Soviet rivalry into context. Narrated in English and Spanish and closed-captioned for the hearing-impaired. Software is used to create reports and presentations.
Macintosh 512E, $495.

Countries of the World
Bureau of Electronic Publishing
Social Sciences: History; World History
Grades 5-College
Includes the full text of all 106 Country Series Handbooks prepared by the U.S. Army; maps (covering population, climate, politics, oceans, and geographic terrain); flags; anthems; and detailed bibliographies. Topics on each country include historical setting, society, environment, economy, geography, population, religion, health, welfare, and more. Network version available.
Macintosh Plus, $495.

Desert Storm: War in the Persian Gulf
Warner New Media
Social Sciences: History; World History
Grades 7-College
Covers key figures, maps of the Gulf area, glossary of high-tech weapons, and an active timeline of the war. Allows users to see and hear synopses of all events. Includes 400 photos in both color or black and white, and original reports filed by correspondents. Requires CD-ROM drive.
Macintosh 512E.

The Dickens Web
Eastgate Systems
Social Sciences: History; World History
Grades 9-12
A hypertextual exploration of the society of Charles Dickens and the history of the Victorian era, by critic and hypertext authority George Landow. Requires *Storyspace* by Eastgate Systems. Copy protected.
Macintosh Plus, $49.95.

¿Donde esta Carmen Sandiego?
Gessler Publishing
Social Sciences: History; World History
Grades 7-12
Ex-secret agent Carmen Sandiego's antics will entertain, bedevil, and educate students as their computers track her and her gang of master thieves all over the world. Along the way, they will learn about geography, history, currencies, and of course language in this fast-paced program. Includes both English and Spanish teacher's guides and a Spanish atlas. Network version available.
Macintosh Plus, $59.95.

Economic Indicators
Heizer Software
Social Sciences: Economics
Grades 11-College
HyperCard stack of 25 years of annual U.S. economic data, covering 50 data series. Drawn from the following categories: employment, unemployment, and wages; production and business activity; prices; money, credit, and securities markets; federal finance; total output, income, and spending; and international statistics. Most recent year also has monthly and quarterly data. Requires Microsoft *Excel* or *Works*.
Macintosh 512E, IBM PC and compatibles, $25.

Electronic Map Cabinet
Highlighted Data
Social Sciences: Geography
Grades 7-College
A comprehensive data source that students can use to draw detailed maps of most of the populated areas of the U.S. Users can choose only the features relevant to their own projects. Requires CD-ROM drive.
Macintosh Plus, $189.

Engines of Change
Intellimation
Social Sciences: History; United States History
Grades 9-College
A rich supplement to U.S. history courses, based on the Smithsonian's American Industrial Revolution exhibition. Period drawings, photographs, documents, and sound effects bring this period alive. Coordinates with the textbook *Engines of Change: The American Industrial Revolution, 1790-1860* by Brooke Hindle and Steven Lubar (Smithsonian Institution Press, 1986). Excellent reference resource for student papers and classroom presentations. Single copy includes exhibit catalog. Lab pack includes 10 program disks and four exhibit catalogs. Requires *HyperCard*.
Macintosh Plus, $49; lab pack $196.

Events Day-by-Day
Slippery Disks
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Grades 5-College
A *HyperCard* stack covering daily events from 1905 on with data on famous people, 4,000 of the most important events in history, and holidays around the world. Contains information on politics, government, aviation, business, industry, war, science, space, the arts, and more. Part of the *Student's DreamTools* series.
Macintosh 512E, $35.

Geography Challenge
Regeneration Software
Social Sciences: Geography
Grades 4-College
Teaches or tests geography skills at any level. Has three levels of difficulty. Covers location/direction, land/climate, resources/economy, and culture/population. Requires *HyperCard*.
Macintosh Plus, $24.95.

Geography Challenge
Intellimation
Social Sciences: Geography
Grades 8-12
A skill-building program that challenges students at three difficulty levels. Hundreds of maps and thematic artwork reinforce geography basics. Hints throughout each game guide learners, who can play solo or in teams. Requires *HyperCard*.
Macintosh Plus, $35.

Global Recall 2.0
World Game Institute
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Grades 4-12
Includes interactive world atlas with global-problems encyclopedia coupled with *Problem Solving Engine*. More than 200 maps including the world, every continent, and every country. More than 300 indicators (statistics) for every country including food, energy, environment, economy, military, health, education, leaders, etc. On-screen help, animation, and "What Can I Do?" suggestions for every problem. Requires *HyperCard*.
Macintosh Plus, $75.

The Government Disk
Highlighted Data
Social Sciences: Civics and Government

Grades 7-College
A complete directory of the U.S. federal government, covering Congress, the executive branch, and the judiciary. Includes pictures, maps, charts, descriptions, addresses, phone numbers, and job titles of people in the federal government. Quarterly updates available for $350. Requires CD-ROM drive.
Macintosh Plus, $200.

The Great Quake of '89
The Voyager Company
Social Sciences: History; United States History
Grades 5-12
Combines a videodisc and *HyperCard* stacks to provide coverage of the 1989 San Francisco-area earthquake. Provides news materials to create an interactive special report. Network version available. Requires videodisc player, CD-ROM drive, and *HyperCard*.
Macintosh 512E, $99.95.

Hidden Agenda Scholastic Edition
Scholastic
Social Sciences: Political Science
Grades 9-12
The fate of Chimerica is in students' hands. As the newly elected leaders, they must lead this emerging Central American nation to political, economic, and social stability within three years. A coup—or worse, assassination—is always imminent as the leaders strive to maintain control, form coalitions, set government priorities, and make policy decisions.
Macintosh 512E, IBM PC and compatibles, $59.95.

HyperAtlas
MicroMaps Software
Social Sciences: Geography
Grades 7-College
A set of maps and information stacks linked together that make it easy to manage information about countries, states, and U.S. cities. Comes with general population and political information. Allows users to add their own information. Requires *HyperCard*.
Macintosh Plus, $99.

In the Holy Land
Optical Data
Social Sciences: History; Current Events
Grades 4-College
A two-sided interactive videodisc that presents the issues and events at the roots of conflict between the Israelis and Palestinians. Covers religious, political, historic, and geographic issues. Requires videodisc player.
Macintosh 512E, $395.

Iraq Stack
Techware
Social Sciences: History; World History
Grades 7-College
A complete hypermedia course designed to help students cope with the issues and information involved in the war with Iraq. Includes wall map. Keeps records. Network version available. Requires *HyperCard*.
Apple II+/IIe/IIc/IIgs, Macintosh 512E, $39.

MacTimeLiner
Tom Snyder Productions
Social Sciences: History; World History
Grades 5-12
Allows user to print easy-to-read single-page or banner-length timelines on any topic with dot-matrix or laser printer. Illustrate timelines with the graphics included or with those which user creates in popular paint programs, or copy timelines into other desktop publishing documents. Network version available.
Macintosh 512E, $69.95.

Martin Luther King, Jr.
Optical Data Corp
Social Sciences: History; United States History
Grades 4-College
A two-sided interactive videodisc which presents the issues and events that shaped the life and contributions of America's foremost civil-rights leader. Covers King's philosophy of non-violent protest, commitment to equal rights, and battle to end segregation. Requires videodisc player.
Macintosh 512E, $395.

Point of View: Civil War and Reconstruction
Scholastic
Social Sciences: History; United States History
Grades 5-12
Provides the backbone for a complete unit on the Civil War. A timeline enables students to explore thousands of events from the period. Contains hundreds of primary source documents, photos, lithographs, maps, and political cartoons that help to capture the spirit of the times. Fully compatible with any CAV videodisc. Part of the *Point of View* series. Network version available.
Macintosh Plus, $199.95.

Powers of the U.S. Government
Optical Data
Social Sciences: Civics and Government
Grades 7-College
Provides a comprehensive and contemporary review of the judicial, legislative, and executive branches of the government. Narrated in English and Spanish and closed-captioned for the hearing-impaired. Software is used to create reports and presentations. Requires videodisc player.
Macintosh 512E, $1,185.

Presidential Candidates
Heizer Software
Social Sciences: History; United States History
Grades 7-College
A complete database of more than 400 presidential candidates from 1789 to 1988. Includes names, running mates, parties, popular votes, electoral votes, percentages of votes, campaign slogans, and party platforms. Includes all parties. Requires Microsoft *Excel* or *Works*.
Macintosh 512E, IBM PC and compatibles, $15.

Presidential Databases
Heizer Software
Social Sciences: History; United States History
Grades 5-College
Includes more than 40 fields of data on all U.S. presidents. Requires Microsoft *Excel* or *Works*.
Macintosh 512E, IBM PC and compatibles, $10.

Presidential Election Project
Intellimation
Social Sciences: Civics and Government
Grades 10-12
With this comprehensive reference resource, students can access

historical election environments, learn about the electoral college, and track political trends in American history from 1789 through 1988. Stacks include state-by-state participation in presidential elections and election results. Requires *HyperCard*.
Macintosh Plus, $79; lab pack, $316.

Presidential Inquiry
MECC
Social Sciences: History; United States History
Grades 5-12
A set of *HyperCard* stacks that provides access to information about our nation's 41 chief executives. Includes biographical facts, historical events, and significant issues relative to each president's administration. Includes card game and controls for videodisc player. Network version available. Requires *HyperCard*.
Macintosh Plus, $59.

QuickMap
MicroMaps Software
Social Sciences: Geography
Grades 7-College
A geographic analysis tool that allows the user to represent data on a map. User imports data into *QuickMap* and chooses classification ranges. Program generates a map from user's data. Covers the U.S. Mathematical functions allow users to calculate ratios, percents, sums, and more. Requires *HyperCard*.
Macintosh Plus, $99.

Rise and Fall
Heizer Software
Social Sciences: History; World History
Grades 7-College
A *HyperCard* stack displays a sequence of maps of Europe between 1933 and 1945, showing Germany's expansion before and during World War II and its eventual defeat. Each screen has pop-up fields with explanations of relevant military and political events. Requires *HyperCard*.
Macintosh 512E, $12.

Shakespeare's Life and Times
Intellimation
Social Sciences: History; World History
Grades 11-12
With graphics of the stage, the dress of the period, and the schematic Renaissance view of the world and the universe, students will gain deeper understanding of Shakespeare's plays, his life, and the social, political, and literary context of his time. Students can choose their level of study and topics via interlinking *HyperCard* stacks. There's also a reference section with an extensive bibliography. Requires *HyperCard*.
Macintosh Plus, $69; lab pack, $276.

The Stack of the Decades
Heizer Software
Social Sciences: History; World History
Grades 5-College
Includes a card for each decade going back to 1650. Covers Who was in, what was out, major events, deaths, and important things that happened in art, music, literature, entertainment, media, religion, science, medicine, memory, and fashion. Requires *HyperCard*.
Macintosh Plus, $35.

State-Smart HyperCard Stack
Platypus Software
Social Sciences: Geography
Grades 4-9
An expanded version of the *State-Smart Electronic Atlas*. Teachers may easily customize this *HyperCard* 2.0 resource to fit their lesson plans. Students may use it to test their knowledge, to locate information, or as a basis for a project. Generates three types of quiz with arcade-game scoring and reporting; includes current Congress Journal data; and plays state songs, including lyrics. Includes customizable placename-locating feature; a module to display numeric/text data as map graphics; expanded stack of project ideas; more than 200 high-quality natural-feature, contour, and city-map graphics; more than 1,200 city locations; and intuitive navigation. Requires *HyperCard*.
Macintosh Plus, $49.95.

States of the Union Database
Heizer Software
Social Sciences: Geography
Grades 7-College
Database covers more than 30 fields of information for all fifty states: geography, government, economy, etc. Updated to the 1990 elections. Requires Microsoft *Excel* or *Works*.
Macintosh 512E, IBM PC and compatibles, $15.

StudentAtlas
Intellimation
Social Sciences: Geography
Grades 7-12
For independent study or group projects. Point and click on maps to give students details about countries and regions. Students can build their own databases and research information for term papers. Teachers can create customized maps beforehand, then project them overhead, to illustrate classroom discussion, and more. Requires *HyperCard*.
Macintosh Plus.

TimeTreks
Earthquest
Social Sciences: History; World History
Grades 4-12
Enables students to experience world history through an adventure game. They can browse the extensive Archives section with thousands of historical facts (3400 B.C. to present), 176 timelines, and dozens of historical themes. Users can customize their screen colors as they explore history. Requires *HyperCard*.
Macintosh Plus, $89.95.

Treaty of Versailles
Intellimation
Social Sciences: History; World History
Grades 9-12
Students play the roles of diplomats who drafted treaties ending World War I. Students must consider "their" countries' past alliances, economic viability, sea access, and future balance of power as they make decisions affecting their future. Builds critical thinking, questioning, and decision-making skills.
Macintosh 512E, $29.95.

U.S. History
Bureau of Electronic Publishing
Social Sciences: History; United States History
Grades 5-College

Includes the full texts of 107 books relating to U.S. history, from the arrival of Native Americans to the present. Includes more than 1,000 photos, maps, and tables of historical events. Network version available. Requires CD-ROM drive.
Macintosh Plus, IBM PC and compatibles, $395.

The USA State Factbook
Quanta Press
Social Sciences: History; United States History
Grades 7-College
A multimedia database of U.S. states, territories, and protectorates. Includes geography, vital statistics, state governments, economics, communication, and other information. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $99.

USA Wars: Civil War
Quanta Press
Social Sciences: History; United States History
Grades 7-College
A multimedia database of the Civil War and covering the period 1860 to 1866. Includes biographies, chronology, campaigns, battles, and foreign involvement. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $129.

USA Wars: Korea
Quanta Press
Social Sciences: History; World History
Grades 7-College
Database which covers U.S. involvement in the Korean conflict of the 1950s. Includes biographies, chronology, campaigns, glossaries, and U.N. forces. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $129.

USA Wars: Vietnam
Quanta Press
Social Sciences: History; World History
Grades 7-College
Multimedia database which covers U.S. involvement in Southeast Asia from 1946 to 1976. Includes biographies, statistics, order of battle, equipment, missions, bibliography, chronologies, and glossaries. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $129.

Wayzata World Factbook 1991
Wayzata Technology
Social Sciences: Geography
Grades 7-College
Based on the *CIA World Factbook*. Includes examinations of 246 territories, countries, protectorates, and disputed land claims worldwide. Socioeconomic, geopolitical, demographic, and other country-specific data is included. Requires CD-ROM drive.
Macintosh Plus, IBM PC and compatibles, $49.

What's the Story: 19th Century America
Wings for Learning/Sunburst
Social Sciences: History; United States History
Grades 5-12
Students gradually unlock the hidden text until the entire content is revealed. They take a trip through history, from Harriet Tubman leading slaves to freedom to the Levi Strauss and his now-famous jeans. Students meet some of the interesting figures that shaped the course of our nation. Part of the *What's the Story* series.
Macintosh Plus, $79; IBM PC and compatibles, $75.

What's the Story: 20th Century America
Wings for Learning/Sunburst
Social Sciences: History; United States History
Grades 5-12
Students gradually unlock the hidden text until the entire content is revealed. They read about Cesar Chavez, FDR, or Amelia Earhart. From Houdini to Helen Keller, students discover role models and personalities. Part of the *What's the Story* series.
Macintosh Plus, $79; IBM PC and compatibles, $75.

What's the Story: Black Americans
Wings for Learning/Sunburst
Social Sciences: History; United States History
Grades 5-12
Students gradually unlock the hidden text until the entire content is revealed. They become active participants in revealing facts about Rosa Parks, Thurgood Marshall, and other influential black Americans. Part of the *What's the Story* series.
Macintosh Plus, $79; IBM PC and compatibles, $75.

What's the Story: Early America
Wings for Learning/Sunburst
Social Sciences: History; United States History
Grades 5-12
Students gradually unlock the hidden text until the entire content is revealed. Active readers uncover little-known facts about key people and events from the time of the Mayflower to the American Revolution. Part of the *What's the Story* series.
Macintosh Plus, $79; IBM PC and compatibles, $75.

World Atlas
Software Toolworks
Social Sciences: Geography
Grades 7-College
A multimedia database which includes more than 240 color maps plus information. Maps include all countries and dependencies, along with world and regional topographic and statistical maps. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $109.

World Country Database
Heizer Software
Social Sciences: Geography
Grades 7-College
More than 30 fields of data covering the people, geography, government, and economies of more than 160 countries. Compiled from U.S. government sources. A research tool for projects and education. Users can add their own fields of interest. Requires Microsoft *Excel* or *Works*.
Macintosh 512E, IBM PC and compatibles, $20.

World History - Mac
Tom Snyder Productions
Social Sciences: History; World History
Grades 5-12
A social studies data disk. Covers world events from the age of exploration to today, including Imperialism, Modern Africa, and the French Revolution. To be used with *MacTimeLiner* by Tom Snyder Productions. Network version available.
Macintosh 512E, $19.95.

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News continued from page 4

and spoke either all English or a mixture of English and Spanish in their homes. The survey's findings, "Latino Voices" are available for $29.95 from Westview Press, 5500 Central Avenue, Boulder, Colorado 80301; call 303 444-3541.

Teachers Uncaring?

According to a recent survey, one in seven parents feels that teachers don't care about their children as individuals. Too often overlooked, say experts, is that there's a natural rivalry between parents and teachers, especially in the early grades.

Unhappy parents are advised to talk to the teacher first, not go directly to a higher authority. The survey did not ask whether teachers feel that parents don't care about their children.

Rocks and Hardplaces

School officials who try to update policies against harrassment find themselves being challenged on First Amendment grounds. The Courts have tended to favor childrens' welfare over freedom of speech, but many see any restrictions as first steps toward censorship.

A unanimous decision by the U.S. Court of Appeals states schools have a "duty" to protect schoolchildren from hazards school officials know or should know about. (The case had to do with sexual abuse by a teacher.) The ruling also said children harmed by negligence (accident, gang violence, etc.) have the right to sue, something any school budget could do without. Meantime, gay rights activists have tried to influence policy against verbal harrassment (some homosexual students have left school due to disparaging remarks), but find themselves opposed by parents who feel this will appear to condone homosexuality. Expect the Supreme Court to be asked for a reading.

First Worksite School in Western U.S.

Hewlett-Packard and the Santa Rosa City School District have opened an elementary school at HP's vast 190-acre manufacturing facility in Santa Rosa, California.

Hidden Valley Satellite School, an experimental project for HP and the school district, is believed to be the first "worksite" school in the western U.S.

The school will at first offer a kindergarten and a first-grade class, and is scheduled to add a second- and a third-grade class in September. In time the school will serve some 115 students. Most of the 47 students arriving for classes on the first day of school were the children of HP employees.

One of the goals of the school is to get parents more involved in their children's education. "Students are usually more interested in school—and therefore typically do better—when parents demonstrate the importance of education by spending time in the classroom," said Lew Alsobrook, Santa Rosa City School District superintendent. "But with the hectic pace of life today, it's tough for parents to find enough time to get involved. We're making it more convenient by bringing the school to the parents."

The school district, with 11 elementary schools numbering some 5,000 students, offers licensed childcare before and after classes. Many HP parents said they planned to take advantage of the childcare program. "Having quality childcare available at the school will help simplify life for a lot of parents," said Ellie McGovern, a marketing employee whose son is in the new school's kindergarten class. "It'll mean one fewer place to drive to after a long day."

Alsobrook proposed the worksite school to HP in 1990, recognizing that the school could help the district encourage greater parental involvement and forge a constructive alliance with HP, the largest private employer in Santa Rosa. HP's local management team responded favorably, and a survey of the site's 2,300 employees showed strong interest.

"Some employees like the idea primarily because they can be closer to their children," said John C. Shanahan, general manager of the Microwave Technology Division, one of three HP entities at the Santa Rosa site. "But other employees, even some without elementary school-age children, are enthusiastic because they believe this kind of joint effort benefits business and education.

"This is really a different kind of alliance for business – one with K-12 education," said Shanahan. "But it is absolutely essential, because without a suitably educated work force, HP and other U.S. companies will lose ground to international competitors." HP gave the school district an $89,000 grant to cover first-year costs associated with opening a new school, and a ten-year lease of the school site for $1. The company also funded all phases of site preparation, from groundbreaking to final landscaping.

The school district covers all other expenses, including the modular school buildings, utilities, building maintenance, teacher salaries, classroom materials, playground equipment and other furnishings. Curriculum also is the responsibility of the school district.

Administration of the worksite school is handled by the principal and staff at Hidden Valley Elementary School, the worksite school's "parent" facility, located about a mile away from HP's Santa Rosa site. However, the new school has its own part-time secretary and two full-time teachers. The opportunity to teach at the worksite school generated great interest among the faculty at the main school, and the district had a sizable list of job applicants.

More info: Lew Alsobrook of the Santa Rosa City School District at 707 528-5181; Jeff Weber of Hewlett-Packard at 707 577-2845.

Canadians Sickened by Violent U.S. Television

1.3 million Canadians recently signed a petition calling for a limit to violence on television. Canadian communications minister Perrin Beatty presented the petition at a recent press conference and said, "As a parent, I am convinced that violence has reached and exceeded its reasonable limit of daily television fare," and announced that he had been working with Illinois U.S. Senator Paul Simon on a campaign to have the three major American networks reduce the amount of violent programming.

Beatty said most programming available in Canada is generated in the United States, "So we better look south," for

continued on following page

solutions to the problem. Beatty said curbing violent American programming is one of a group of five Canadian government initiatives. The other four: a strong uniform code on television violence for all elements of the industry; a public education campaign in concert with the Canadian Association of Broadcasters and the National Film Board; the encouragment of major Canadian advertisers not to place ads on violent television programs; and an award to recognize those whose contributions help make television less violent.

All the News About Fits We Print

The last issue of *EPIEgram* had a piece about Japanese findings of video game-induced seizures. Now Deutsche Presse Agentur reports that a French study has also revealed a possible link between playing video games and seizures, citing 30 cases of epileptic fits.

The study was carried out by a commission which was detailed last month by the government, following reports of children suffering seizures while playing "video computer games."

The commission is to report back in April with more detailed findings on the effects of the games' strobe effects and quick-changing pictures on the brain.

SysOps in Puppetland

The Lawrence Livermore National Laboratory in Livermore, California, will be spreading the gospel of computer ethics to schoolkids with puppets and song. Gale Warfahawsky, director of programs for the Livermore Lab said that she and Computer Security Manager Lonnie Moore developed a program using puppets, video, and overhead transparencies to teach security and define computer crime for employees; now it' s the turn of local elementary schools. Miss Warfahawsky, an amateur puppeteer, had the help of a puppet company, Images in Motion of Sonoma, California, in developing the edifying extravaganza.

Three main characters for the security presentations evolved: Chip, a puppet made out of a computer case; Gooseberry, a naive computer user, very appropriately purple and feathered; and Dirty Dan, a bad-guy perpetrator of heinous electronic crimes.

The jolly puppet shows are meant to illustrate security topics in unthreatening ways. For example, in one sketch Gooseberry chooses for a password her first name; Chip the computer talks her into a better choice for a password, but then Gooseberry writes her password down on a note and sticks it to the side of Chip's monitor! Oh no! Then, of course, while Gooseberry is at lunch, the vicious Dirty Dan slithers in and erases her work. In another segment, loathsome Dirty Dan spills coffee onto the abused Chip's keyboard, causing Chip to cry.

On a family day at Livermore Labs, a parent saw the presentation and asked if Warfahawsky could come to his daughter's school, Emerson Elementary, and do a show for the students. It went over so well that Miss Warfahawsky and colleagues are now planning to visit local schools once a month.

One of the puppeteers' concerns is that the glorification of teen hackers will have kids growing up thinking that there is nothing really wrong with stealing information. In the show, Dirty Dan's theft of the gentle Gooseberry's data is likened to someone stealing a student's bicycle. (Of course, data can be copied; bicycles cannot; thus the metaphor, however well intentioned, fails.)

The Livermore employees who are involved in the program are doing it on their own time. They have designed a comic book featuring Chip, and produced a leader's guide for use in the presentation. The team is scheduled to begin their school presentations this March and anticipate full booking into 1994.

More info: Gale Warfahawsky, Lawrence Livermore National Laboratory, 510 422-1100; fax 423-0913.

Superhighway from front page

private industry. He sponsored legislation—the National Research and Education Network, known as N.R.E.N.—which created five Federally-financed test centers where industry and university researchers are developing technologies for the superhighway.

This would, in effect, create yet another long-distance company, and opposition from AT&T and other long-distance carriers has been immediate and vocal. Lobbyists in Washington are promoting the idea that phone companies should be permitted to provide digital services through something called the Integrated Services Digital Network (I.S.D.N.), which would use existing copper telephone cables to reach every home in America. Critics say this moves data too slowly and too expensively.

The battle lines are being drawn. Top levels of the administration from Clinton & Gore on down favor long-term government investment in infrastructure. The regional Bell phone companies, whose competition with AT&T grows stronger each year, are giving it cautious support. The big hardware companies—IBM, Apple, and Digital—are calling for a government entity. A clamor is building from business and educational leaders that someone should do it, and quickly.

Yet to be heard from are those who stand to have their applecarts upset by easy access to a data superhighway, the traditional guardians of information: the libraries, the schools, hospitals, and other public institutions. There has not been too much reaction yet.

The American Library Association has suggested that there was a "danger of public interest being lost" and that libraries need to continue to exist to provide a "safety net" for those who can't afford access.

Once the electronic superhighway begins to become a reality, one can expect the "Luddite factor" to emerge more strongly, but if history teaches us anything, it is that new technology is an irresistible force. The problem of access can be solved if one of the starting objectives is to make it accessible to everyone. ❑

Books & Journals

Windows on Books on Windows

More than half of new personal computers come with DOS-Windows already installed as the primary operating system (about one million a month). That means that even as you read this, thousands of folks are trying to figure out what it's all about. And since there are endless combinations of computers and software and versions, there are bound to be situations where tweaking is required. Print to the rescue:

From Microsoft Press: *Running Windows 3.1*, Third Edition, by Craig Stevens, and its fraternal twin, *The Concise Guide to Microsoft Windows*, by Kris Jamsa, $27.95 each. Both include lots of information you may or may not want to know, but explain well.

From Prima Publishing, Rocklin, California: *Windows 3.1: The Visual Learning Guide*, $19.95. Authors Grace Joely Beatty and David C. Gardner both have a Ph.D. in psychology (can't hurt) and are also computer trainers. Their book avoids theory; has lots of visual learning with step-by-step guides.

From IDG Books, San Mateo, California (415 312-0650): *Windows 3.1 Secrets*, by Brian Livingston, a mammoth 990 pages for $39.95. Comes with a disk with nearly 50 shareware programs, including a virus detector and database manager; some are free, some on the honor system.

Nader's Readers

Citizen Ralph Nader hopes to make waves in the classroom with a new 250-page teaching guide to supplement history, social studies, or civics courses. Nader theorizes that high-school civics has been so stripped of proper names, real examples, and practical information—all in an effort not to offend—that nothing is left but a tedious skeleton of government structure. "Very dull, very rote, very unempirical, and very remote," says Nader. "It's part of the general curriculum syndrome, which is 'make no waves.'"

If you agree, it's $15 for the 250-page *Ralph Nader's Civic Curriculum*, Center for the Study of Responsive Law, P. O. Box 19367, Washington, D.C. 20036.

News for Kids

Publishers and producers have found an emerging market: news for kids.

Tomorrow Morning for 8- to 12-year-olds, is like *USA Today*, splashy and colorful and full of news. Thirty-three issues for $16.17; fifty-two for $29.95. Call 800 365-2881.

ZuZu (7 to 12) is aimed at New York kids who live in lower Manhattan—with parents who read—but actually has much broader appeal (even as *The New Yorker* sells better out of town). It's published by Restless Youth Press, 271 East 10th Street #64, New York, New York 10009. Six issues for $12. Call 212 477-6756.

American Girl (6 to 10), published every two months by the Pleasant Company, Middleton, Wisconsin, is heavy on girl things and barely admits the existence of boys. Six issues for $19.95. Call 800 845-0005.

Real News for Kids, a half-hour news show from Turner Broadcasting, featuring current events culled from CNN with teenage and younger correspondents. Also features an 800 call-in for viewers to voice their ignorant opinions.

Parents Interested in Kids: Kids Interested in School

The National Education Longitudinal Study states unequivocally that students in grades 8 through 10 are much less likely to drop out when their parents take a direct interest in their schooling. Their recent report shows this to be especially true of youngsters lower on the socioeconomic scale, where the risk of dropping out is greatest.

While this all may seem rather obvious, corroboration may be useful. The complete report, *A Profile of Parents of Eighth Graders*, by the NELS, , is available for seven dollars from Superintendent of Documents, U.S. Government Printing Office, P. O. Box 371954, Pittsburgh, Pennsylvania, 15250-7954. It is document number 065-000-00512-3.

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Earl L. Fultz, Editor & Publisher
P. Kenneth Komoski, Executive Director, EPIE Institute
Pat Lutzky, Manager, SCISS\TESS

STATS

School Sizes

Most public schools average around 500 students; 10% have 1,500 or more. Only 1% of students attend schools with fewer than 100 pupils. The type of school tends to determine the student population: 430 on average for primary grades, 560 for middle schools, and 700 for high schools.

– *National Center for Education Statistics.*

Taking Attendance

Current U.S.:
Total students: 47.6 million.
Public school: 42.2 million (up 200,000 from last year).
Private school: 5.3 million (little change).
Total teachers: 2.8 million; 2.5 in the public sector.
Teacher to pupil ratios: public schools 17.2; private schools: 14.8.
Average cost of public education: $5,372 per student.

Summer Data

The *School District Data Book*, the most comprehensive set of data on students and schools ever produced, will be available by summertime. A federally-funded project (costing a mere $5.2 million), the *Data Book* will include vast stores of information from the 1990 Census and the Education Department's Common Core of Data.

But don't let the name fool you. The "Book" will—for the first time—be released on CD-ROM. It is expected the entire package will contain from 9 to 20 discs (a disc carries the equivalent of 300,000 pages) and will cost $35 per disc. It will be particularly helpful for educators and government agencies which must plan many years in advance.

Paper Cuts

With 60% to 90% of all nonspoken communications still paper-based, software companies are bringing out products that ease us into the electronic medium. Essential to the operation is a digital scanner and a computer with plenty of storage memory and a high-resolution screen.

Among the products: *Acrobat* from Adobe Systems; *Common Ground* from No Hands Software; *Fetch* from Aldus; *Recollect* from Rebus Technology; and *Watermark* from Watermark Software.

On the subject of paper: the contents of a five-drawer file cabinet can be stored on just one computer disk. A CD-ROM disc can hold up to 300,000 pages. A Navy study found that one of its cruisers carries more than 26 tons of maps and documents – so the Navy has bought more than 3,000 CD-ROM players and expects to buy many more. Save a tree, buy a CD!

Bad Students

The National Education Association estimates that every day 100,000 students carry a gun to class; another study reports that 13% of all incidents involving guns in the schools occur in elementary and preschools. Every school day, 6,250 teachers are threatened with injury and 260 are actually assaulted.

- *Time*, February 8, 1993.

More Use

Home computer users spent more time at their PCs and worked with a broader spectrum of applications in 1992 than they did a year ago. These are among the findings from an in-depth survey of 2,500 PC owners conducted for Packard Bell by California Research Tabulations.

Some 42% of all home users polled say their primary use for the computer is personal (e.g. writing a letter) or pleasure (e.g. playing a game); another 37% say their PC is used primarily for business; and 21% say their PC is used by household members for school work.

Time in front of the screen is up, with almost 50% of the respondents reporting they spent more than 10 hours per week at the computer, compared with 30% in 1991. "Power" home users are also growing in number – almost 10% of the respondents use their computers more than 30 hours per week. More than eight out of 10 respondents classified themselves as having at least some computer knowledge, and half of that group said they are relatively knowledgeable or power users.

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The Newsletter of Software and Systems for Learning

Volume 19, Number 7 April 1993

Conflicts Already Evident at Data Superhighway Hearings

AT&T Trashes Baby Bells

Silicon Valley Dissenter Sees Bureaucracy as the Problem

Bigwigs from the communications industries, testifying to Congress in late March in support of President Clinton's plan for a "national information infrastructure," quickly fell into vicious turf fighting.

To begin with, however, everyone at the packed Congressional hearings, both execs and lawmakers, agreed on the need for the giant digital thoroughfare, and even on what government's role in getting it built should be: as referee rather than player. Honchos from the telephone, cellular, and cable television industries all advised the government to let the private sector do most of the work; and lawmakers from both sides of the aisle endorsed this view, agreeing with the executives that many elements of the network were already in place. "The private sector should be—must be—the primary source for meeting our communications needs," said Edward J. Markey, Democrat of Massachusetts, and chairman of the House subcommittee on telecommunications and finance. "The government's role largely should be confined to setting goals and facilitating improvements."

Executives and lobbyists from AT&T, Bellcore, Sprint, Ameritech, Bell Atlantic, BellSouth, Cincinnati Bell, GTE, MCI, NYNEX, Pacific Telesis, Southwestern Bell, Southern New England Telephone, and US West have all signed a statement endorsing the plan's goals.

Robert E. Allen, chairman and CEO of AT&T, said, "We envision a seamless web of competing but interconnected networks—both wire and wireless—that will enable people to have easy access to each other and the information they want and need anytime, anywhere and in any form."

He said this could broaden classroom-learning opportunities; enhance delivery of health-care services; link worldwide business operations further to improve their productivity and efficiency; serve researchers, even those using supercomputers; enable travelers to stay in constant touch; and provide visual and data services, as well as video entertainment on demand, to the home.

Allen urged the government to "articulate the vision" of a new information infrastructure "that goes beyond but builds upon the systems already in place." He recommended government efforts which would help drive the communications industries toward a common purpose: creation of a fully competitive information infrastructure; allocation of more of the spectrum for wireless services; resolve technical-standards issues; and create incentives for research, development, and investment throughout the information industry.

It became apparent, however, that technological advances have placed the various existing communications industries on a collision course – and disagreements showed up as soon as the talk verged on turf.

Allen teamed with cellular and cable execs in arguing that local phone firms—the Baby Bells—will prove to be bottlenecks and should continue to be kept out of the long-distance and cable industries entirely; that they have been slow to offer an interim digital technology; and that they

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SCISS/TESS Update
Begins on Page 5

The Latest Software
for Science
from *TESS*!

Eight Huge Pages Slopping Over
with Program Data and Descriptions

Opinion

The current public school system is really a real estate market – you can get good schools if you have enough money to buy an expensive home.

– Alan November, technology consultant.

More and more, scientific and technological issues dominate national debate, from the greenhouse effect to the economic threat from foreign technology. Being able to understand these debates is as important as being able to read.

– Robert M. Haazen and James Trefil, authors of *Science Matters: Achieving Scientific Literarcy* (Doubleday, $12), arguing that **all** students need a good grounding in science.

Like most other countries, the U.S. must worry about productivity – not only in industry but in schools as well. Historically, technology has been the means of improved productivity. It's essential we promote [schools' use of] technology. Another essential part of education reform is using technology to extend the school day.... Schools need to support technologies that can enhance what children do in the classroom with learning at home.

– Joan Ganz Cooney, Chair of Executive Committee for Children's Television Workshop and originator of *Sesame Street*.

Larger schools require a much more substantial managerial and support apparatus than smaller schools. The assumption has been that you would need the same kind of bureaucratic structure if a school got smaller. In fact, although you do need a head of school, you need less middle management, less security, less deans [*sic*], less guidance, because teachers are enabled to perform more of those functions as part of their daily life.

– Jeanne Silver Frankl, Executive Director of the Public Education Association, citing a body of research which has found that children who attend larger schools tend to perform less well academically than their counterparts in smaller schools.

We have to ask more in our schools of our students, our teachers, our principals, our parents. We have to recognize that all of our high school graduates need some further education in order to be competitive in a global economy. So we have to establish a partnership between business and education and the government for apprenticeship programs in every state in this country.

Lifelong learning must benefit not just young high school graduates but workers, too, throughout their career. The average 18-year-old will change jobs seven times in a lifetime.

Unless we have the courage now to start building our future and stop borrowing from it, we're condemning ourselves to years of stagnation...we will be condemning our children and our children's children to a lesser life than we enjoyed.

– President Clinton's Address to Congress.

The real purpose of education should be to guide children in the process of personal growth – not to indoctrinate them or fatten them up for sacrifice on the altar of The State. A school has no more business trying to make a dull child intelligent than it has trying to give a blind child sight. The slow learner, also a valuable human being, must be helped to find individual fulfillment. Character development and artistic achievement should be encouraged, as they will contribute to happiness in later life.

Let's unlock the cages and open the doors. We cannot allow our youngsters to be penned up like criminals. They need room to stretch and grow.

– Sachiya Hiro, A Buddhist scholar.

The first thing [we need to do] is we must develop a concrete vision of a home-based learning center. The second is that we must recognize our current educational institutions...are probably incapable of making the kinds of decisions needed to make a home-based system.

– Senator Bob Kerry (D., Nebraska) speaking to investment bankers and money managers on the need to help the federal government "invigorate" the American commitment to public libraries and education by developing home-based electronic learning centers.

Every intellectual revolution which has ever stirred humanity into greatness has been a passionate protest against inert ideas. Then, alas, with pathetic ignorance of human psychology, it has proceeded by some educational scheme to bind humanity afresh with inert ideas of its own fashioning.

– Alfred North Whitehead, *The Aims of Education*.

In the NEWS

FCC Disputes Flintstones' Claim to Be Page Right Out of History

A suddenly hard-nosed Federal Communications Commission announced in March that television stations may no longer count cartoons or shows such as *Leave It to Beaver* as educational programming. Broadcasters are required by law to demonstrate their commitment to education as a condition of renewing their lucrative licenses every five years, and many stations would present such fare to a winking FCC as evidence. The tougher FCC line came a week before a congressional committee was to hold a hearing on whether broadcasters are trying to skirt the educational requirements. Officials may have been worried that, gosh, the guys might think they were creeps or somethin'.

White House Needs Technology Initiative

Schools having trouble catching up with the information age, take solace. While Bill and Al streak around the country pushing their "national information infrastructure" and data superhighway, many phone calls in the White House are still being connected manually by operators plugging jacks into a switchboard. Young staff members are stunned and baffled to find typewriters on their desks. What PCs the White House does have are several generations old, brought in during the closing years of the Reagan Administration—the Bush Administration seems to have found computers *awfully* distasteful—and are arrayed in a spaghetti-like tangle of 21 isolated networks. The President's schedule is still printed on paper and distributed by hand instead of by computer, so some people get it a couple of hours late. But hundreds of new computers are on order; and White House telecommunications specialists are even thinking of going for multimedia.

Study Shows Student Achievement Grows with In-School Use of PCs

A report released Monday by the Software Publishers Association (SPA) suggests that personal computers can make a big difference in the way students perform in school.

Based on the findings of 86 independent research projects, the *Report on the Effectiveness of Technology in the Schools, 1990-1992* provides an overview of the specific ways in which computers help students learn faster, feel better about their work, and interact more productively with their teachers.

The findings apply to students of all ages and skill levels, with the most dramatic results occurring among lower-skill and low-motivation students. The study also emphasizes the significant role of the teacher in establishing an effective computer-based learning environment.

According to the report, students respond more effectively to software programs which incorporate learning controls, informative instructional feedback, embedded instructional strategies, and animated graphics. In addition, educational software tools help to generate—and are also strengthened by—cooperative learning environments with a high degree of teacher-student and student-student interaction.

For more information and an order form, write to: Report on Effectiveness of Technology in Schools, SPA, 1730 M Street, N.W., Suite 700, Washington, D.C. 20036. Telephone 202 452-1600, extension 207.

While You're Up, Get Me a Grant

Most educators have learned to scrounge. Tight budgets and increasing demands for technology have made some administrators adept at finding additional dollars from a variety of private and public sources. Some tips that might help follow.

For one thing, foundations and funding agencies are putting information about themselves online.

The National Science Foundation allows potential applicants to dial into its online Science and Information Technology System (SITS). It also has an NSF telephone book online. Contact NSF, Office of Information Systems, 1800 G Street, N.W., Room 401, Washington, D.C. 20550. Telephone 202 357-7555.

Dialog Information Service (Palo Alto) is a commercial database system which provides access to the NSF's database of private and corporate grants. Telephone 800 334-2565; in California 415 858-2700.

For beginners, everything from tips on writing proposals to a list and newsletter on potential funders, K-12, can be found on AppleLink at 20525 Mariani Avenue, Cupertino, California 95014. Telephone 408 974-3309.

There is also an easy-to-use software program, GrantSearch CFDA ($375) from Capitol Publications, Alexandria, Virginia, which allows keyword searches of the Catalog of Federal Domestic Assistance. Contact Michele Thrasher at 800 847-7772.

Contact local telephone company foundations, especially if part of the Bell System. Ameritech: 312 750-5000; U.S. West: 303 793-6356; Bell Atlantic: 215 963-6000; Bell South: 404 249-2000; NYNEX: 212 370-7400; Pacific Telesis: 800 637-6373; Southwestern Bell: 314 235-9800.

To Fee or Not to Fee

Whether or not libraries should charge a fee for high-tech usage and customized services is fast becoming a key question in the nation's capital and elsewhere.

The Information Industry Association, which represents purveyors of information such as Mead Data Central (Lexis and Nexis) are concerned that it would put some companies out of business; and even the head of the Library of Congress, James Billington, felt the library should not become a profit-making concern. However, he also noted that the Library of Congress with its 100-million item collection is a vast national asset which is vastly underused.

continued on following page

The idea of a high-tech library would seem to be in line with the administration's plan for a national data superhighway, and there are those who feel it can't be provided free and that there ought to be a way to assign reasonable costs. Meanwhile, Billington pointed out that inmates in California jails will have easier access to library resources than will high-school students.

Feds Buying

Federal purchases of computers and associated products currently exceed $20 billion annually; estimates are that figure will be $26.5 billion by 1994.

Schools Milked

Thirty-five corporations and 40 individuals have paid more than $35 million in fines and penalties for conspiring to rig bids in the sale of milk to public schools and other institutional clients. In one of the most recent cases, Borden has agreed to pay $8 million dollars for alleged improprieties in Texas; in the late 1980s, Borden paid a $5.5 million fine for rigging bids in Florida.

Notes from AAAS Meeting

Highlights from the recent annual meeting of the American Association for the Advancement of Science:

Mathematics and science instruction is changing only slowly to meet the goals of several school-reform blueprints.

Despite wide dissemination of standards developed by the National Council of Teachers of Mathematics, the lecture and recitation mode still dominates in most classes.

Some progress is being made in following the NCTM's recommendation for less emphasis on teaching of facts, but there is no corresponding evidence of more emphasis being placed on "problem-solving."

More sophisticated (graphing) calculators are beginning to take the place of what educators expected computers to do, changing teachers' and students' roles, almost forcing teachers to teach differently.

High-school students appear to be taking more math courses but increases come in algebra and geometry. Boys still tend to outperform girls.

Overall analysis: little progress toward reform.

Billions Squandered

Managing the Federal Government: A Decade in Decline, a 334-page report produced by the Democratic staff of the House Government Operations Committee, identifies more than $300 billion in wasted funds across the government.

The report alleges that during the presidencies of Ronald Reagan and George Bush, the Education Department mismanaged some $14.7 billion, much of it in the federal student-loan program.

Among the objections raised in the report is that while the agency's budget increased a whopping 85% between fiscal years 1981 and 1991, the number of programs it managed increased by "only" 47%. Among the errors cited: too large a subsidy to lenders participating in the federal loan program; failing to scrutinize properly the postsecondary institutions for program eligibility; permitting students who defaulted on loans to continue to receive aid; using unreliable accounting and information systems; failing adequately to monitor processes for awarding and closing-out the grants.

America's Highest-Paid Educator

His name: Edward J. Murphy. His job: Superintendent of the Board of Cooperative Services (BOCES) III in New York State.

Scope of job: 28 centers and training sites.

Compensation at time of retirement: salary, $229,870; cash for 812.5 days of accumulated unused leave: $848,900 (Based on 101 personal or sick days annually plus 44 vacation days – or 145 out of 365); retirement incentive: $114,900; paid-up life insurance: $1,000,000; lifetime health benefits for Murphy and his wife; an automobile; University Club membership.

The BOCES III fund of $13.7 million was equal to 20% of the agency's budget. Nearly $1 million has been promised to six other administrators still work at BOCES III.

Commentary:

"If they (New York State) had been monitoring, they would have known."

"Everybody's got a little bit of a bad taste in their mouth."

Ten o'Clock Scholars

What's It Worth? Educational Background and Economic Status. Spring, 1990, a report on the relationship between education and income, is now available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

The report notes that as of 1990, one fourth of American adults had earned a degree beyond high school (up from 20.7% in 1984), with a parallel increase in pay.

Those who had a degree beyond high school earned an average of $2,231 a month compared with $1,077 for those with only a high-school diploma. High-school dropouts earned an average of just $492 per month. Doctoral degrees boosted earnings to $3,855 and a professional degree was good for almost $5,000, more than 10 times the dropout's earning.

Computer-readable versions of the report are available from the bureau's data-user division at 301 763-4100.

C-SPAN – A Renewable Resource

Because much of C-Span's programming is decided on a day-to-day basis, it isn't easy for teachers who would like to use it in the classroom to plan ahead. They may therefore be glad to learn that there is a toll-free Educators' Hotline they can call to learn the latest schedules: 800 523-7586.

C-Span is funded entirely by America's cable television companies as a public service and has a very liberal copyright policy. Educators have the right to tape any C-Span program without receiving prior permission as long as the recording serves an educational purpose. Furthermore, C-Span programs may be retained in perpetuity for classroom use; thus, students can be assigned to assemble their own videotapes from material aired on C-Span, with the better ones becoming part of a school's archives.

(Also, the Purdue Public Affairs Video Archives has compiled highlights of the new faces pouring into Washington during the change in administrations. For more information, call 800 423-9630.) ❑

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Programs
(Chiefly for the Macintosh)
of
Science

All about Science – CD-ROM
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Science: General Science
Grades 5-9
This collection of forty-eight programs covers virtually all elementary through intermediate science topics in a high-interest, low-reading-ability format. Titles included are: Elementary Science II, Investigating Our World Package, Investigating Matter and Energy Package, and The Science of Living Things Package. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $395.

Amazing Animals
WINGS for learning/Sunburst
Science: Biology; Animal Organisms
Grades 5-12
Students gradually unlock hidden text until entire content is revealed. They read about the Bolas spider capturing its prey with a silken lasso, or the archerfish using its mouth as a water gun. Eight selections offer fascinating animal facts and lead students through an active reading investigation. Part of the *What's the Story* series.
Macintosh Plus, $79; IBM PC and compatibles, $75.

Anatomist
Folkstone Design
Science: Anatomy and Physiology
Grades 9-College
A reference that can be used to explore the details of human anatomy. Provides spoken pronunciations of anatomical names. Based on material from *The Anatomy Coloring Book* by Kapirand and Flagg. Incorporates illustrations, human speech, reference text, and personal annotation with hypermedia access. Requires CD-ROM drive and *HyperCard*.
Macintosh Plus, $295.

Animal Behavior
Optical Data
Science: Biology; Animal Organisms
Grades 4-12
A collection of movie clips providing an encyclopedic guide to 700 species of animals. Focuses on the behavioral pattern of each species and how the species interact within their environment. Part of the *Multimedia Library Series*. Requires videodisc player and *HyperCard*.
Macintosh 512E, $995.

Astronomy
E+M Software
Science: Astronomy
Grades 5-12
Produces star plots in separate windows. Solar System plots a view of the solar system from the Pole Star for a given date and time. Sky View plots an image of the heavens as seen from Earth for a given date, time, longitude, and latitude. Users can generate detailed enlargements of either plot by using the zoom features.
Macintosh 512E, $19.95.

Audubon's Birds of America
CMC ReSearch
Science: Biology; Animal Organisms
Grades 5-College
A multimedia program containing precise replicas of Audubon's *Birds of America* with nearly 500 color lithographs and CD-quality sounds for many birds. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $49.95.

Audubon's Mammals
CMC ReSearch
Science: Biology; Animal Organisms
Grades 5-College
Contains a precise replica of the John James Audubon text *Quadrupeds of North America*, including more than 150 color lithographs as well as animal sounds. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $49.95.

Beaker: An Expert System for Organic Chemistry
Brooks/Cole Publishing
Science: Chemistry; Organic Chemistry
Grades 9-College
Allows students to explore organic chemistry principles, study and solve problems, sketch and analyze molecules, and more. An active-learning tool that invites students to think like chemists. Network version available.
Macintosh 512E, $29.95.

Biology Tutor – Package One
Mindplay
Science: Biology
Grades 9-College

Package One of a three-part series by Kastia Bergman and Robert Stickgold; lays the foundation for students by teaching them about the building blocks of biology. Four disks include Biological Principles, Biochemistry, Cells, and Genetics. Stimulates interest through realistic simulation and experimentation. Offers extensive feedback on problems and questions. Provides help with the Disktionary, a target vocabulary with complete definitions. Part of the *Biology Tutor Series*. Copy protected. Network version available.
Macintosh Plus, $349.

Biology Tutor – Package Two
Mindplay
Science: Biology; Animal Organisms
Grades 9-College
Package Two of a three-part series by Kastia Bergman and Robert Stickgold; builds on Package One by teaching about the living creatures of the world. Includes two disks on Plants and three on The Animal Kingdom. Stimulates interest through realistic simulation and experimentation. Offers extensive feedback on problems and questions. Provides help with the Disktionary, a target vocabulary with complete definitions. Part of the *Biology Tutor Series*. Copy protected. Network version available.
Macintosh Plus, $399.

Biology Tutor – Package Three
Mindplay
Science: Anatomy and Physiology
Grades 9-College
Package Three of a three-part series by Kastia Bergman and Robert Stickgold; completes the series with a look at humans and their unique environment. Three disks include two on The Human Body and one on Ecology. Stimulates interest through realistic simulation and experimentation. Offers extensive feedback on problems and questions. Provides help with the Disktionary, a target vocabulary with complete definitions. Part of the *Biology Tutor Series*. Copy protected. Network version available.
Macintosh Plus, $249.

Bio Sci II
The Voyager Company
Science: Biology
Grades 5-College
Enables students to explore the biological world, its habitats and life forms. Provides scientific classifications, an index of biological topics, and world maps showing distribution of biomes. Requires CD-ROM drive, videodisc player, *HyperCard*.
Macintosh 512E, $99.95.

Chemistry at Work Stacks
Videodiscovery
Science: Chemistry
Grades 9-12
Access any image on *Chemistry at Work* videodisc by instructional concept, chemical formula, frame number, or scientific name. Create custom slide shows or use pre-written lessons and text overlay. Keeps records. Copy protected. Requires videodisc player, *HyperCard*.
Macintosh 512E, $150.

Chemistry Tutor – One
Mindplay
Science: Chemistry
Grades 9-College
Package One of a two-part series by Kastia Bergman and Robert Stickgold; begins by laying the groundwork for future chemistry learning. Five disks include Quantities and Measurements, Atoms and Elements, Molecules, Molecular Weight and Moles, and Empirical Formulas. Self-paced, the program encourages students "to open their minds to learning about the intricacies of our world." It features detailed animation, simulated experiments, and interactive sessions. Offers extensive feedback on problems and questions. Part of the *Chemistry Tutor Series*.
Macintosh Plus, $429.

Chemistry Tutor – Two
Mindplay
Science: Chemistry
Grades 9-College
Package Two of a two-part series by Kastia Bergman and Robert Stickgold; moves on to more advanced concepts and provides the student with a thorough knowledge of chemistry. Five disks include Chemical Reactions, Acids and Bases, Oxidation-Reduction, Ideal Gases, and Solutions. Self-paced, the program encourages students to open their minds to learning about the intricacies of our world. It features detailed animation, simulated experiments, and interactive sessions. Offers extensive feedback on problems and questions. Part of the *Chemistry Tutor Series*.
Macintosh Plus, $489.

Clip-Art for Science Teachers
Ventura Educational Systems
Science
Grades 5-12
Provides science teachers with a wide variety of detailed diagrams that can be added to tests, reports, overhead transparencies, and worksheets. Categories include biology, earth and space, microorganisms, science lab, frogs, whales, clams, and worms. Requires paint program. Network version available.
Macintosh 512E, $29.95.

Comprehensive Review in Biology – CD-ROM
Queue
Science: Biology
Grades 9-College
A collection of programs which offers extensive review and practice in biology for high school and college. The titles included are: Comprehensive Review in Biology Package, Advanced Placement Biology Test Preparation, CBAT Biology, SEI Biology, and Biology I and II. All are interactive tutorial programs which branch to an explanation after every wrong answer. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $295.

Cosmic Chemistry
Optical Data
Science: Chemistry
Grades 7-12
Reviews the chemical principles critical to understanding the role of chemistry in everyday life. Four double-sided videodiscs include slides, computer graphics, movies, and animations. Safe lab procedures are reinforced throughout the program. Requires videodisc player.
Macintosh Plus, $1,995.

Data Logger
Vernier Software
Science: Physics
Grades 7-College

User may link Macintosh computer and the *Universal Lab Interface* by Vernier Software with a number of sensors and probes, including pH electrodes, thermocouples, magnetic field sensors, light sensors, and pressure sensors. Data collected are displayed graphically on screen and can be manipulated, saved, or transferred to other Mac programs.
Macintosh 512E, $15.

Destination: Mars!
Compu-Teach
Aviation and Space Flight
Grades 7-12
Takes students on an action-based pace adventure where their knowledge of science is the key to success. On their journey to Mars, they will learn NASA space data, critical thinking skills, and applicable areas of astronomy, biology, chemistry, geology, and physics. The database, mission book, and maps provided will assist them as they perform crucial missions, experiments, and emergency operations. No giant rat-spider.
Macintosh Plus, $59.95.

Doing Chemistry
American Chemical Society
Science: Chemistry
Grades 10-12
Provides *HyperCard* stacks for teachers to use to create handouts and lesson plans to go with the videodisc program of the same name. Encourages hands-on activities by offering teachers instruction on how to present and perform demonstrations and experiments in the classroom. Requires videodisc player and *HyperCard*.
Macintosh Plus, $595.

Earthquest Explores Ecology
Earthquest
Science: Ecology and Environment
Grades 4-12
Brings the science of ecology to life through animation, sounds, simulations, and graphics. Students explore the major ecosystems on earth and learn about the vital relationships and cycles that sustain all life. They also explore the mystery and wonder of the Brazilian rainforest. Includes simulation of cause-effect relationships and trying to understand what keeps an ecosystem going. Requires *HyperCard*.
Macintosh Plus, $89.95.

Ecodisc
Living and Learning Software
Science: Ecology and Environment
Grades 7-12
Students explore a nature reserve in different seasons, solving problems, experimenting, viewing species, and analyzing data projections for up to 50 years. Comes in nine languages: Danish, Dutch, English, French, German, Italian, Norwegian, Spanish, and Swedish. Requires CD-ROM drive.
Macintosh 512E, $249.95.

Ecomap
Save the Planet Software
Science: Ecology and Environment
Grades 8-College
Displays maps of 14 major ecosystem complexes covering the earth's land surface. Maps can be of a single continent or of the entire world. Single ecosystems or groups can be displayed. Includes a 300-word glossary, bibliography, and tutorial lessons to stimulate thinking about global ecology and land use. Average lesson 10 minutes. Network version available. Requires *HyperCard* 2.0.
Macintosh 512E, IBM PC and compatibles, $18.

Elementary Data: Periodic Table
RockWar
Science: Chemistry; Atomic Structure and Periodic Table
Grades 10-College
A reference program for the science student. Includes information on each element and features an interactive periodic table. Works with *Multifinder* and System 7.
Macintosh Plus.

Elements Macintosh Plus
Flight Engineering
Science: Chemistry; Atomic Structure and Periodic Table
Grades 9-College
A *HyperCard* database stack of all the known elements of the periodic table with descriptions of their properties. Includes the concentration of the elements in the earth's crust, a history of the periodic table, a description of how the elements were made in the universe, alchemy symbols, and an explanation of how the periodic table works.
Macintosh Plus, $20.

Event Counter
Vernier Software
Science: Physics: Nuclear Physics
Grades 7-College
Collects nuclear radiation data from an RM-4 Radiation Monitor, which connects to the *Universal Lab Interface* by Vernier Software. The data is graphed in real time as it is collected. Both counts/interval and distribution graphs can be saved or transferred to other applications.
Macintosh 512E, $15.

Event Timer
Vernier Software
Science: Physics: Motion, Force, and Energy
Grades 7-College
Allows user to take measurements of motion using *Universal Lab Interface* by Vernier Software and a photogate system. These measurements are displayed graphically on the screen and can be manipulated and saved. Use a homemade photogate system from a Vernier Software Photogate System Parts Kit, or an assembled Photogate System available from Pasco Scientific.
Macintosh 512E, $15.

Explore and Discover: Voyage of the Mimi Videodisc
WINGS for learning/Sunburst
Science
Grades 4-8
Teachers and students will be able to look even closer at the themes introduced in *The Voyage of the Mimi* by using this computer software along with the videodisc collection. For each side of the videodisc, students can look at a summary of the episode or expedition; work through a variety of investigations dealing with themes introduced in the video; and access a glossary. A special feature allows teachers to create their own reports. Requires *The Voyage of the Mimi* and videodisc player.
Macintosh Plus, $99.

Explorer Lab
WINGS for learning/Sunburst
Science: Physics
Grades 8-College

Controls experiments automatically or manually from the computer. Enables user to collect experimental data with a full range of commercially-available sensors including temperature, light, sound, pressure, pH, and motion. User can create and save customized experiment setups, inputs, buttons, and switches; create analysis displays which include line graphs, bar charts, or pie charts; and use full-featured spreadsheet (with graphing capability) for detailed manipulation and analysis. The system supports multiple simultaneous measurements. The five multi-function connectors provide analog, digital, and high-speed digital input/output. Includes a light sensor, a lab interface module, temperature sensors, and a reference manual.
Macintosh Plus, $495.

Facts on File News Digest
Facts on File
Social Sciences: History; World History
Grades 7-College
A multimedia subscription database that gives a comprehensive overview of world current events. Includes news articles, maps, and interactive tutorials. Covers from 1980 to 1990. Updated annually. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles.

The Fetal Pig
Ventura Educational Systems
Science: Biology; Animal Organisms
Grades 7-12
Provides a comprehensive investigation of the anatomical structures and biological functions common to mammals. Topics include skeletal system, nervous system, cardiovascular system, reproductive system, and musculature. Keeps records. Network version available.
Macintosh 512E, $59.95.

Frog Anatomy and Physiology
Optical Data
Science: Biology: Animal Organisms
Grades 9-College
Contains more than 150 slides, 50 diagrams, and 34 movie clips providing a comprehensive review of amphibian anatomy and physiology. Includes a detailed sequence illustrating a dissection. Part of the *Multimedia Library Series*. Requires videodisc player and *HyperCard*.
Macintosh 512E, $595.

Geology and Meteorology
Optical Data
Science: Geology
Grades 9-College
Provides 34 clips in English and Spanish, more than 7,200 slides, and a 400-term glossary in earth geology. Students identify landscape features and work with topographic maps. Covers volcanoes, earthquakes, glaciers, and fluvial processes. Part of the *Multimedia Library* series. Requires videodisc player and *HyperCard*.
Macintosh 512E, $995.

GraphPaper
Daedalus Scientific Software
Comprehensive: Generalized Tool Programs; Publishing and Printing Tools
Grades K-College
Produces custom-made graph paper – rectangular, polar-coordinate, or logarithmic. The rectangular paper may have any number of lines per inch, either horizontally or vertically. The logarithmic paper may have any number of cycles on either axis.
Macintosh Plus, $19.95.

The Great Solar System Rescue
Tom Snyder Productions
Science: Astronomy
Grades 5-8
Small groups of students make up teams of experts (astronomers, meteorologists, geologists, and space historians) searching for lost probes in our solar system. Students must work together, analyzing visual data from the videodisc, to form theories about each probe's location. Keeps records. Copy protected. Requires videodisc player.
Macintosh 512E, $299.95.

GTV: Planetary Manager
National Geographic Society
Science: Ecology and Environment
Grades 5-12
A comprehensive exploration of major environmental issues impacting the earth, including topics from global warming to deforestation and water pollution. Through this multimedia program, students can grasp connections between the environment, science, and society. Copy protected. Requires videodisc player.
Macintosh Plus, Apple IIgs, 80386-based PC, $595.

Invertebrates
Ventura Educational Systems
Science: Biology; Animal Organisms
Grades 7-12
Covers the structure of four invertebrates: sponges, sea anemones, clams, and starfish. Includes a database of information, a quiz, and two games. Keeps records.
Macintosh 512E, $49.95.

KaleidaGraph
Synergy Software
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Grades 9-College
A data analysis and graphing application. Uses pull-down and pop-up menus. Data entry is made through screen editing and file processing. Allows data transformations and numerical calculations.
Macintosh 512E, $249.

Laser TechFonts
Nisus Software
Industrial Arts: Electronics and Electricity
Grades 9-College
A collection of Type 1 and True Type fonts for scientific-equation writing and circuit schematics. Program supplied on tape.
Macintosh 512E, $139.

LEAP-System Microcomputer-Based Lab
Quantum Technology
Science: Physics
Grades 7-12
A microcomputer-based laboratory consisting of courseware, hardware, and software. Lets user collect data and graph the experiment as it happens. The data may be printed in graphical or numerical format or exported to a database or word processor. Allows switching between experiments in various disciplines. Allows multiple student groups to use up to 16 probes simultaneously. Probes include temperature, light, pH, dissolved oxygen, pressure, and more. Can run short-term, high-speed experiments.
Apple II series, Macintosh Plus, $870.

Life Story
WINGS for learning/Sunburst
Science: Biology: Heredity
Grades 8-College
The human drama behind the discovery of DNA comes alive with *Life Story*. Segments from the drama *The Race for the Double Helix* offer students a unique look into the hopes, fears, and daily struggles of researchers Francis Crick, James Watson, and Rosalind Franklin. Students pursue accompanying documentary interviews, molecular animations, and historical photographs. *QuickTime* video segments and videodisc are used to produce this award-winning exploration. Requires CD-ROM drive and videodisc player.
Macintosh LC, $299.

MacAnatomy
MacMedic Publications
Science: Anatomy and Physiology
Grades 9-College
An electronic atlas of human anatomy. Includes four volumes: 1) head, neck, abdomen, and pelvis; 2) heart, lungs, thorax, and nervous system; 3) upper limbs and lower limbs; and 4) bones, joints, and cross sections. Students can use the program in conjunction with textbooks to provide a convenient memorization tool. The drawings may be printed out and used for constant reinforcement with or without the legends. Students can merge drawings with *MacWrite* documents to provide illustrations in various projects. Teachers can include the drawings in handouts with customized comments and instruction. The illustrations are in *MacPaint* format and can be easily modified. Each of the volumes contains 80 to 120 drawings. Volumes may be purchased separately for $95 each.
Macintosh 512E, $350.

MacChematics
Daedalus Scientific Software
Science: Chemistry: Stoichiometry
Grades 9-College
A wholly self-contained tutorial for stoichiometry. Asks questions and explains how to answer them. Covers chemical mathematics. Requires *HyperCard*.
Macintosh Plus, $19.95.

MacFly
Intellimation
Science: Biology; Heredity
Grades 10-12
Teaches the basic principles of genetics with minimum set-up time and expense. Simulates a genetics lab, complete with breeding fruit flies. Students will complete three lab experiments using computer-generated *Drosophila*, ten times larger than their real-life counterparts. Pre- and post-lab activities enhance the learning experience. A built-in glossary defines the necessary terms.
Macintosh Plus, $29; lab pack, $116.

MacFrog
Intellimation
Science: Biology; Animal Organisms
Grades 10-12
Simulating actual frog dissection, this interactive laboratory application displays information about each organ as it's removed. Animation illustrates functions that are normally hard to view and understand. Students begin with pre-lab information on the structure, function, and location of parts from the frog's five systems. Students can receive answers to their questions. A quiz reviews and reinforces learning following each system. At the end of the procedure, the Frog Test gives learners a comprehensive review.
Macintosh Plus, $35; color $39; lab pack $140; color lab pack $156.

MacMotion
Vernier Software
Science: Physics: Motion, Force, and Energy
Grades 7-College
Instant analysis tool of complicated data on one-dimensional motions and forces. Distance, velocity, acceleration, and force data can be collected, graphed, and stored. Allows up to 4 graphs to be displayed and plotted. Motion and force sensors connect to the *Universal Lab Interface* by Vernier Software, which interprets data and relays it to Macintosh via the modem port.
Macintosh 512E, $15.

MacStronomy
Etlon Software
Science: Astronomy
Grades 5-College
Allows users to view the sky for any date and time in any direction from anywhere on earth. Includes more than 1,700 celestial objects, phases of moon, two sky-map orientations, a separate map of the solar system, and more. User can add own objects to database, zoom into maps, select object groups, and more.
Macintosh 512E, $75.

MacTemp
Vernier Software
Science: Physics; Heat
Grades 7-College
Allows temperatures from two probes to be collected, graphed, and stored. Data is graphed in real time as temperatures are read. Readings may be taken over short periods or spread out over many days. Once data is collected, it can be saved or transferred to another application. Temperature sensors connect to the *Universal Lab Interface* by Vernier Software.
Macintosh 512E, $15.

Mechanisms of Stability and Change
Optical Data
Science: Ecology and Environment
Grades 7-12
Explores the natural processes found in physiology, genetics, ecology and evolution. This double-sided videodisc contains 47 movie clips narrated in English and Spanish and more than 2,000 slides. Requires videodisc player.
Macintosh Plus, $995.

Molecular Editor
Intellimation
Comprehensive: Generalized Tool Programs; Graphics Generators
Grades 10-College
Users can construct ball-and-stick, wire-frame or space-filling models and manipulate them in 3-D. Then they can explore symmetry properties, steric hindrances, connectivity, crystal unit cells, and more. Will open up to 20 files simultaneously. Includes built-in commands which compute atom-to-atom distances, bond angles, and bond torsion angles. With this program, teachers can introduce students to every 3-D aspect of chemistry short of macromolecules.
Macintosh 512E, $45; lab pack, $180.

Mystery Fossil: A Physical Anthropology Lab
Mayfield Publishing
Science: Natural History
Grades 11-College
Simulates a lab experience to help students solve genuine paleoanthropological puzzles. Students are asked to determine the species and phylogenetic position of unknown (to them) hominid fossils by comparing them to known fossils. Top, side, and front views of these three "mystery" fossils have been scanned into the program. Keeps records. Requires *HyperCard*.
Macintosh 512E, $15.95.

National Geographic Kids Network
National Geographic Societ
Science: Ecology and Environment
Grades 4-6
Kids conduct original research, use a computer to record data, and then share their findings by modem with "research teammates" in the U.S., Canada, and other countries. Students choose from particular units which are online for eight weeks several times a year. They do research, experience the scientific process, and more. Requires modem.
Apple IIgs, Macintosh 512E.

Neuroanatomy Foundations
Intellimation
Science: Biology; Organ Systems
Grades 11-12
A *HyperCard*-based computer atlas of the brain. Digitized three-dimensional brain dissections, diagrams, and text present the brain's architecture with drama and clarity. Covering the cerebral hemispheres, cerebellum and brainstem, major fiber tracts, and subcortical structures, the program's "atlas" format gives students the flexibility to pursue special topics of interest or use the program as a reference. Requires *HyperCard*.
Macintosh Plus, $45; lab pack, $180.

Perichart
Intellimation
Science: Chemistry; Atomic Structure and Periodic Table
Grades 9-College
Drill and practice for students learning the details of the periodic table. Includes three levels of difficulty. There are three areas of concentration: names and symbols; positions; and valence electron configurations.
Macintosh 512E, $29.

Physics Explorer: Diffraction
WINGS for learning/Sunburst
Science: Physics; Waves and Particles
Grades 9-College
Investigates diffraction and interference of light and other waves in a wide range of frequencies. Use up to three light sources simultaneously and wavelength and amplitude of each source. Can add up to 20 slits of varying widths and separations, "intensity detectors," control distance from slits to a "projection screen," and more. Part of the *Physics Explorer* series.
Macintosh 512E, $125.

Physics Explorer: Gravity
WINGS for learning/Sunburst
Science: Physics; Motion, Force, and Energy
Grades 9-College
Enables students to explore the motion of a body under the influence of a centrally gravitating planet. They will qualitatively and quantitatively observe Kepler's Laws and apply them to the sun, the earth, the planets, and satellites. They can investigate centripetal force, conservation of energy, escape velocity, and more. Part of the *Physics Explorer* series.
Macintosh 512E, $125.

Physics Explorer: Harmonic Motion
WINGS for learning/Sunburst
Science: Physics: Motion, Force, and Energy
Grades 9-College
Explores the harmonic motion of a body, from simple one-dimensional oscillations to complex Lissajous patterns. Includes a variety of damping, driving, and constant force options to investigate. In addition to its intrinsic value for mechanics, it complements the study of planets, electrons, waves, and AC electricity. Part of the *Physics Explorer* series.
Macintosh 512E, $125.

Physics Explorer: Ripple Tank
WINGS for learning/Sunburst
Science: Physics; Waves and Particles
Grades 9-College
Explores interference, diffraction, reflection, and refraction of waves in a two-dimensional medium. Multiple point sources can be placed independently in experiment tank to demonstrate how source position and wavelengths combine to cancel or reinforce wave intensity. Straight, parabolic, circular, and elliptical barriers may be added. Part of *Physics Explorer* series.
Macintosh 512E, $125.

Physics Explorer: Waves
WINGS for learning/Sunburst
Science: Physics; Waves and Particles
Grades 9-12
Students can observe the motion of waves along a string and connect several different media to observe velocity changes, reflection, and transmission at boundaries. Students investigate superposition, standing waves, harmonics, damping, and driving forces.
Macintosh Plus, $125; network version, $500.

Physics Modules: Acceleration, Projectile, Waves
Intellimation
Science: Physics; Waves and Particles
Grades 10-College
In three animated modules, students can graphically adjust constants of motion. Acceleration displays the time and position of passing objects. Projectile provides targets and tracks post-launch motion, showing position and velocity. Waves shows the traveling waves. Includes line help index, which explains screen items.
Macintosh Plus, $29.

Physics of Sports Stacks
Videodiscovery
Science: Physics
Grades 9-12
Access any image on *Physics of Sports* videodisc by name or concept; create custom slide show; or use 6 prepared lessons. Work through labs taking measurements from video screen. Keep computerized log book. Copy protected. Requires laserdisc player and *HyperCard*.
Macintosh 512E, $125.

Physics Simulation II: Electromagnetism
Intellimation
Science: Physics; Electricity and Magnetism
Grades 11-12
Five programs introduce electricity and magnetism. Coulomb displays the electric field pattern for point charges on a plane. Laplace calculates and displays the solutions to Laplace's equation on a two-dimensional square lattice. Radiation simulates the time evolution of the electric field of an accelerated point charge. Ampere shows the magnetic field pattern for coaxial current rings. Monopole demonstrates the passage of a magnetic monopole through a superconducting ring. Includes utilities for printing specific screen displays on an ImageWriter.
Macintosh 512E, $45; lab pack, $180.

Physics Simulation III: Modern Physics
Intellimation
Science: Physics
Grades 11-12
Covers the fundamental concepts of modern physics. Gas simulates the thermal motion of particles in a box. Brownian simulates the random thermal motion of a particle. Wave demonstrates the concepts of group and phase velocities. Fourier performs the Fourier transform and inverse transform. Hydrogen generates electron density plots for each of the quantum states of the hydrogen atom. Diffraction generates density plots for various diffraction geometries. Transition shows the semi-classical transition between the 1s and 2p states of the hydrogen atom.
Macintosh 512E, $45; lab pack, $180.

Physics Simulation I: Mechanics
Intellimation
Science: Physics
Grades 11-12
Five programs introduce elementary concepts in mechanics. Ballistic simulates two-dimensional motion in a constant gravitational field. Potential simulates the motion of a particle in a one-dimensional potential as well. Oscillator simulates simple damped and driven harmonic oscillators. Kepler uses pre-defined orbits or variable parameters to demonstrate planetary motion and study Kepler's laws. Einstein demonstrates special relativity.
Macintosh 512E, $45; lab pack, $180.

Physics Tutor 1
Mindplay
Science: Physics
Grades 9-College
Package One of a two-part series by Kastia Bergman and Robert Stickgold; it starts students off with mechanics to give them a general understanding of the basics of physics and then continues with the principles of energy and waves. Four disks include Force and Motion, Momentum and Work, Heat, and Waves and Sound. Stimulates students with realistic experiments and simulations. Encourages participation through its interactive, self-paced format. Part of the *Physics Tutor Series*. Copy protected. Network version available.
Macintosh Plus, $399.

Physics Tutor 2
Mindplay
Science: Physics; Light and Optics
Grades 9-College
Package two of a two-part series by Kastia Bergman and Rebert Stickgold will electrify students with a study of charges and magnetism, continuing through light and mirrors. Four disks include: Electricity, Magnetism, Light and Mirrors, and Lenses. Stimulates students with realistic experiments and simulations. Encourages participation through its interactive, self-paced format. Part of the *Physics Tutor Series*. Copy protected. Network version available.
Macintosh Plus, $399.

Principles of Biology
Optical Data
Science: Biology
Grades 9-College
Offers a survey of life science with molecular, cell, plant, animal, and human biology. Includes 2,700 slides, 150 diagrams, 163 movie clips, and a 650-term glossary. Movie clips are narrated in English and Spanish. Part of the *Multimedia Library* series. Requires videodisc player and *HyperCard*.
Macintosh 512E, $1,495.

Principles of Physical Science
Optical Data
Science: Physics
Grades 9-College
Offers a survey of chemistry and physical science including matter, motion and forces, waves, electricity, and magnetism. Provides 2,500 slides, 300 diagrams, 90 movie clips, and a 325-term visual glossary. Part of the *Multimedia Library* series. Requires videodisc player and *HyperCard*.
Macintosh 512E, $1,495.

Science and Technology
Tom Snyder Productions
Science: General Science
Grades 5-12
A science data disk. Covers science, invention, and technological advancement. To be used with *MacTimeLiner* by Tom Snyder Productions. Network version available.
Macintosh 512E, $19.95.

Science ToolBox
Craft Robot
Science
Grades 3-College
A turnkey desktop laboratory consisting of a rugged box the size of the PowerBooks. The cover for STB contains the circuit board. Probes plug into it using familiar phone jacks. STB works with a data acquisition card and the Macintosh. STB uses (and includes) the run-time version of *LabVIEW* from National Instruments as the base software. More than a dozen probes such as pH, Hall Effect, thermocouples, thermistors, etc., are included. Has optional sensors for robotic motors, radioactivity, air quality, conductivity, acceleration, etc. Sensor packs with curriculum project sheets are available to supplement basic materials. Requires 5MB RAM for System 7.
Macintosh SE, $900.

Sensornet
AccuLab Products
Science: Biology
Grades 7-College
An integrated multi-channel probeware interface and software package which enables the recording and display of data from various sensors common to the chemistry, biology, and physical/earth science lab courses. With pre-calibrated Plug & Go sensors, students make measurements quickly, easily, and accurately. System 7-savvy; supports color, saves, prints and exports data. User has full command of data-

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collection sequence by setting measurement parameters; measured data is presented in tabular, digital, and real-time graphical formats. Graphs can also be recorded as *QuickTime* movies for insertion in word processor programs for creating lab reports and tests.
Macintosh Plus.

Sky Gazer
Carina Software
Science: Astronomy
Grades 5-12
An introductory astronomy program designed for the young student, the adult novice, or the casual backyard astronomer. Illustrates constellations, seasons, and eclipses. Animates the motions of the moon, planets, and some spacecraft. Shows color pictures of astronomical objects and can print high-resolution star maps.
Macintosh Plus, $79.95.

Sound
Vernier Software
Science: Physics; Sound
Grades 7-College
For use with the *Universal Lab Interface* by Vernier Software. Allows the user to display sound waveforms and do Fourier analysis. Requires microphone.
Macintosh 512E, $15.

Space
Tom Snyder Productions
Science: Astronomy
Grades 5-12
A science data disk. Covers from early astronomy to modern space exploration. A partner to Tom Snyder Productions new videodisc, *The Great Solar System Rescue.* To be used with *MacTimeLiner* by Tom Snyder Productions. Network version available.
Macintosh 512E, $9.95.

Stargazer
Mousetrap Software
Science: Astronomy
Grades 6-12
Displays the night sky as it would appear at a specified time and from a specified location (by latitude and longitude). Highlights the constellations.
Macintosh Plus, $24.95.

Stella
High Performance Systems
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Grades 7-College
Provides tools to facilitate student understanding of science through the process of model building and simulation. Modeling begins as the students use *Stella's* generic building blocks to create a diagram of the system of interest. *Stella* automatically creates the equation structure necessary for simulation. Allows user to test assumptions via simulation.
Macintosh 512E, $200.

The View From Earth
Warner New Media
Science: Astronomy
Grades 7-College
Based on *Voyage Through the Universe* from Time-Life Books. Covers solar eclipses, why they occur, and what makes them so rare; tracks every total solar eclipse on Earth from 1940 to 2040; and gives an interactive chronicle of eclipse sightings throughout history. Requires CD-ROM drive.
Macintosh Plus, $79.95.

Voyager II: Dynamic Sky Simulator
Carina Software
Science: Astronomy
Grades 10-College
A major re-write of the desktop planetarium program *Voyager 1.2*, this is a complete simulation of the sky. It includes color, high-resolution printing, about 50,000 objects (expandable to about 250,000), pictures of astronomical objects viewed from within the program, numerous improvements to the interface, many feature enhancements, and significant performance increases.
Macintosh Plus, $159.95.

Voyager: The Interactive Desktop Planetarium
Carina Software
Science: Physics
Grades 5-College
This interactive program recreates the sky at any time and from any location. User can see a total eclipse of the sun, observe orbits of Venus, Earth, and Mars from Jupiter, follow a newly discovered comet, and more. Database includes: 9,100 stars, 3,000 deep-sky objects, 88 constellations, 1,600 binary stars, and more.
Macintosh 512E, $124.50.

Weather Modelling Kit
Intellimation
Science: Meteorology
Grades 7-College
Introduces students to the concepts of weather prediction and analysis. Includes a comprehensive manual which explains the history and practice of meteorology. Also includes three programs to create and animate weather models: the Macstorm Barotropic Model, a Macintosh version of meteorology's first prediction model; Atmos Translator, which translates and prepares data for animation; and Atmos Animator, which analyzes weather data and creates a graphic weather movie. Also included are Meteorologica, which explains how science and meteorology have coevolved with the aid of computers, and The Gallery of Storms, a database of some of the most severe storms to affect the U.S. over the past 40 years. Does not run on Mac IIci or IIsi.
Macintosh Plus, $45; Lab pack, $180.

The Wonders of the Animal Kingdom
Unicorn Software
Science: Biology; Animal Organisms
Grades 1-6
Teaches students about the wonders of the animal kingdom while developing language arts, reading comprehension, and discrimination and memory skills. Depicts animals from various zoological species, including prehistoric, jungle, fish, insects, amphibians, birds, and more.
Commodore 64/128, $29.95; Apple IIIII+IIeIIc, $34.95; Apple IIgs, Macintosh 512E, Commodore Amiga, $49.95. ❑

Superhighway continued from front page

used their dominance in local communications to stifle competition from more advanced services. "The fact is," he said, "information-age services that could have been delivered to customers have been stalled."

These sentiments were seconded by Brian L. Roberts, president of a Philadelphia cable TV company, who said that if limits on local phone companies are removed prematurely, "Believe me, it will be the death of competition."

But Richard H. Brown, vice chairman of Ameritech, the midwestern Baby Bell, said that local phone firms were under assault from a host of competitors and needed to be allowed to compete in the coming market for sophisticated video transmission. Other supporters of the BBs argued that they cannot invest in fiber-optic lines which can bring a cornucopia of new services to schools and homes unless they are freed from rules which bar them from getting into long-distance and cable transmissions.

These are old debates but have acquired a special urgency because of the administration's data superhighway push; and some pundits see the wrangling which results as perhaps the biggest roadblock to the data superhighway.

Meanwhile, T.J. Rodgers, president and CEO of Cypress Semiconductor, insisted that the entire superhighway should be privately built. According to a company press release, Rodgers' testimony was meant to convey "the growing mood of discontent among many of Silicon Valley's prominent leaders regarding President Bill Clinton's recently unveiled technology policy, including the data superhighway initiative," and that he meant to "challenge the perception that all high-technology chief executive officers are in accord with the Clinton administration's technology agenda." Rodgers told members of the Subcommittee: "The administration would have us believe that the business leaders of Silicon Valley stand unanimously behind its program. The image of John Scully, CEO of Apple Computer, sitting beside the First Lady and applauding the State of the Union address has been beamed far and wide by White House political operatives.

"I am here today in strong opposition to the administration's economic program in general and its technology agenda in particular. I am not alone." While approving of the administration's move toward a high-technology vision, Rodgers criticized its plan to spend billions in taxpayer money to fund technology programs. He argued that these programs, such as the data superhighway initiative, could be funded by the free market without any cost to the taxpayers. "Multiple, competing highways are being built day by day across the United States. MCI, AT&T, and Sprint already have three independent, coast-to-coast, fiber-based long-haul networks. The real issue is extending those networks into the home. The role for government is to untangle the morass of bureaucracy and regulations that prevents private companies from hooking up the last mile of fiber to the home," Rodgers said.

Rodgers said that government's role should be in getting the bureaucracy out of the way of companies such as AT&T which are already chomping at the bit to connect all homes directly to their fiber network. AT&T, he says, is blocked by rules that make the investment uneconomical; while cable-TV companies face regulations preventing them from supplying anything other than television signals to the 60 million homes they are already wired into; and FCC restrictions block companies from providing wireless connections to existing fiber networks.

Rodgers offered the following examples to underscore his position on the administration's data superhighway initiative.

☛ "The regional Bell operating companies would gladly hook fiber optics from the long-haul network to the home. But they are prevented from doing so by regulations that make the huge capital investments uneconomical."

☛ "Cable operators are already hooked into 60% of American homes. They too could make the connection with existing long-haul data superhighways, but they are prevented by regulations that declare them a 'natural monopoly' and restrict them to television and movie business."

☛ "The long-haul superhighway could be hooked into the home through wireless circuits. But the frequencies required are currently being held up by the Federal Communications Commission."

Rodgers's overall recommendation: "Washington should stay away from the intricacies of high-tech competition – whether the issue is the data superhighway, high-performance computing, or advanced manufacturing. It should focus instead on the infrastructure of competition...." ❑

"Advanced telecommunications are increasingly being recognized by states as a competitive weapon in economic development and business retention and attraction."

– L. C. Mitchell, telecommunications consultant at the accounting firm of Deloitte and Touche, noting that New Jersey is committed to border-to-border fiber optics, and that although such an investment is costly, ignoring fiber optics will cost even more.

Software and Technology

Millie's Math House (Pre-K to 1, Macintosh or MS-DOS) gets high ratings for the quality of graphics, music, and understandable digitized speech, as well as concepts which appeal to the young.

Typical activity: fit small, middle, and big characters with the right size shoe. Build-a-Bug uses numbered body parts to build unique bugs. In Mouse House, children use geometric shapes to build houses that match blueprints. Sound card recommended. $64.95.

From Edmark, Redmond, Washington. Telephone 800 426-0856.

Encarta, a multimedia encyclopedia on CD-ROM contains articles, animation, sounds, illustrations, graphs and photographs, an atlas, a dictionary, a 20-foot historical timeline from 15 million B.C. to the present, and more than 100 historical maps with accompanying sound and animation to explain subjects such as the Civil War and the Crusades. For MS-DOS. $249.

From Microsoft, Redmond, Washington. Telephone 206-882-8080.

The San Diego Zoo Presents... The Animals, a multimedia CD, which presents more than 1,250 photographs and 2,500 pages of information, more than an hour of video clips, and two hours of audio with special sound effects for hundreds of exotic mammals, birds, and reptiles. Macintosh or MS-DOS, $119.95.

From Software Toolworks, Novato, California. Telephone 415 883-3000.

The Oregon Trail, one of MECC's more popular releases, is now available in a deluxe edition. Call 800 685-MECC.

National Geographic has condensed 23 interactive primary-level books into 5 CD-ROMs that are about as good as one will find for beginning readers at school or in the home.

The Wonders of Learning CD-ROM Library explores the wonders of natural science and geography in *A World of Animals, Our Earth, The Human Body, A World of Plants*, and *Animals and How They Grow*.

CD-ROM technology entices children to read, National Geographic says, by putting them in control. With a click of a mouse, children can tour the human body, watch a plant sprout from a seed, or marvel at the metamorphosis of a butterfly as they follow the narration or easy-to-read text. They can slow down the narration, insert a delay between phrases, pause to learn the meaning of words, and hear words translated into Spanish.

The text's font, size, style, and line spacing can be customized to suit each child's needs.

For teachers or parents each CD-ROM features activity guides which can be easily accessed and printed. Designed specifically for the Macintosh, the *Library* requires at least 2MB RAM (system 6.0.5 or higher) with Macintosh-compatible CD-ROM drive; a color monitor is advised. $99.95 list per CD-ROM, $89.95 to educators, $395 for the set. Order from National Geographic at 800 368-2728 weekdays or fax anytime to 301 921-1575.

Anyone interested in a history of the world on CD-ROM for a pricey $795 may want to take advantage of the publisher's offer to try it first. Produced by Bureau Development, *The History of the World* is billed as a "complete and authoritative collection of works from the dawn of civilization to the present day," includes several hundred authoritative works and provides an annual update for $125. A little *caveat emptor* may be appropriate. Call 201 808-2700 to get a password and instruction.

New from WINGS for learning/Sunburst, high-school math courseware: *Math Connections: Algebra I* and *Algebra II*, and *Geometry Inventor*.

Designed for the Macintosh, the programs take advantage of the click-and-drag power of the mouse to create an environment in which the students set their own focus for exploration. The objective is to reduce the abstraction of learning algebra and geometry and to motivate students to investigate mathematical concepts.

Each program includes a teacher's guide, a disk, and a back-up disk. $129. For more information or a free 45-day preview, call WINGS for learning/Sunburst at 800 321-7511. Fax 408 438-4214.

Since planning for SMARTLINE began in 1991, OERI has awarded contracts for requirements analysis, prototype database development, and a pilot test on INet (OERI's Institutional Communications Network).

The prototype SMARTLINE databases will be available on INet to the test group this May and to a wider pilot group before the end of 1993.

In addition to its role as the SMARTLINE pilot platform, INet is designed to facilitate information sharing between OERI and the major education research, development, and dissemination institutions it supports.

For information about SMARTLINE, contact James A. Mitchell, 202 219-2050. For INet, contact Keith M. Stubbs, 202 219-1547.

There may be light at the end of the carpal tunnel, as well as for other syndromes related to the repetitive, awkward movements demanded by traditional keyboards: a new keyboard design from Kinesis Corporation, Bellevue, Washington. The Ergonomic Keyboard conforms to the shape and movements of the hands and wrists, with the traditional key layout on separate, concave alphanumeric keypads for each hand. Reprogrammable keys allow for customization, and separate thumbkey keypads redistribute the load from the normally overworked little fingers to the thumbs. Palm supports, closer placement of keys, and optional foot pedals are all designed to reduce injury to wrists and hands. Call 206 455-9220 for more information.

□

Books & Journals

Freebies

Free from OERI, Department EIB, 555 New Jersey Avenue, N.W., Washington, D.C., 20208-5641:

Performance Assessment (OR 92-3056). Discusses a form of testing which requires students to perform a task rather than select an answer from a ready-made list.

Reading Recovery (OR 03-3058). Discusses an early-intervention program to help low-achieving 6-year-olds learn to read.

Directory of Library Research and Demonstration Projects 1976-86 (LP 92-4760). Abstracts of Funded Projects – an analytical and chronological history of the Higher Education Act, Title II-B, Research and Demonstration Program from OERI.

Free from ACCESS ERIC, 1600 Research Boulevard, Rockville, Maryland 20850-3166: *ERIC Review*, Fall 1992 (ERIC 92-5024). Discusses partnerships between schools, colleges and universities, businesses and communities.

America Online Guide

The America Online Membership Kit and Tour Guide, MS-DOS and Macintosh versions, provides operating software and 10 hours free online time for new and current users. All you need to know about electronic mail, interactive forums, computing support, online classes, software files, news, and more. $34.95 from Ventana Press, Chapel Hill, North Carolina. Telephone 919 942-0220.

Cassette Guide

R. R. Bowker, loyal to print, is offering a 2,000-page book with information on more than 50,000 audio cassettes from some 1,000 producers. Listings include fiction, non-fiction, contemporary works, classics, entertainment, education, and business. $135 from R. R. Bowker, New Providence, New Jersey. Telephone 908 464-6800.

Kid News

Along with commercials in classroom comes word of solid news media for young folks. Included are:

Tomorrow's Morning, a weekly newspaper for 8- to 12-year-olds, modeled along the lines of *Le Journal des Enfants* in France, with a definite *USA Today* look. $16.17 for 33 issues; a more expensive per issue $29.95 for 52. Telephone 800 365-2881.

American Girl, 6 to 10 year olds, published every two months by Pleasant Company, Middleton, Wisconsin. Six issues, $19.95. Telephone 800 845-0005.

If You Can't Lick 'em, Join 'em

I Media-Literacy Comic Book

Big Noise, a 24-page media-literacy comic book, is aimed at developing more media-savvy teenagers by deconstructing advertising, music, videos, and television programs aimed directly at this age group. Subscriptions to the bimonthly newsletter are available for $8 from: *Big Noise*, 1243 West 7th Avenue, Vancouver, British Columbia VZ6H 1B7, Canada. Telephone 604 736-9401

II Teacher's Guide

The Family Television Research Center at Yale University has created a teacher's guide, *Creating Critical TV Viewers*, to help students make better use of their TV viewing. The book breaks television down into basic elements such as message, visual and aural ingredients, and edited sequences. The guide suggests strategies for properly identifying fact, opinion, and appeals to emotion in programs, and for interpreting a program's intent. A 77-minute videotape illustrates some of the points made in the book. *Creating Critical TV Viewers* costs $15.95, with the video an additional $39.95, plus $4 S&H. Telephone 800 228-4630. ❑

EPIEgram

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Earl L. Fultz, Editor & Publisher
P. Kenneth Komoski, Executive Director, EPIE Institute
Pat Lutzky, Manager, SCISS\TESS

STATS

Teachers' Pay

According to the NEA, the average annual salary for public-school teachers rose from $9,268 in 1970, to $17,644 in 1980, to $32,977 in 1990. According to the DOE, the average will be $40,092 in 2002.

Pupils' Cost

According to the DOE, the nationwide expenditure per public-school pupil was $911 in 1970; $2,502 in 1980; and $5,243 in 1990.

Harper's Index

Average amount of own money a U.S. public-school teacher spends on teaching materials each year: $500.

Ratio of the number of Americans employed by government to those employed by manufacturers: 1:1

Chances that a child in the U.S. public-school system has been classified as mentally or physically disabled: 1 in 10

Rank of basketball among sports contributing to the largest number of fatalities among players each year: 1

Change, since 1970, in the percentage of elderly Americans living in poverty: -13.

Change in the percentage of American children living in poverty: +7.

Math Attitude

DOE polls show that in 1978, 27% of 17-year-old students agreed with the statement, "I am taking mathematics only because I have to." Twelve years later, in 1990, the figure was...27%.

Brain Dead

DOE polls show that as of 1990, 9% of 17-year-olds watched television at least six hours a day; as did 17% of 13-year-olds; and a terrifying 23% of 9-year-olds.

Asians Doubling

According to a 318-page report, the nation's school-age population of Asian and Pacific Island heritage will more than double by 2020. Based on existing census data, the nation's Asian-Pacific population has doubled each decade since 1970 to about 7.3 million in 1990. This will increase to 20.2 million or 8% of the U.S. population by 2020, according to the Asian American Studies Center of the University of California in Los Angeles and the Asian Pacific American Public Policy Institute, a think-tank established last year.

Copies of the report, *The State of Asian Pacific America: Policy Issues to the Year 2020* can be obtained by calling 213 485-1422.

Educational Software

According to the Software Publishers Association, parents spent far more on educational software for school-age children in the first nine months of 1992 than during the same period a year earlier: $81.5 million compared to $58.5 million. This is a 39% increase, compared to only 18% for all types of software in the same period. (However, Nintendo and Sega sales topped 10 million units last year and are expected to increase to 13 million in 1993.)

Technology Used

Viewed statistically, the acceptance of technology in schools is increasing rapidly: the incidence of satellite dishes is up 87%; computer networks, 64% (with Apple having a slight edge over IBM); CD-ROM, 48%; and videodisc, 45%; with modems at 26%.

According to Quality Education Data, more than half the nation's students now attend school in districts which have satellite dishes, videodisc, and cable television.

But statistics can be misleading. There are still more than 13 students for every computer, many of the machines are old, few have software which aligns with the curriculum, and the chances are pretty good that one can graduate from high school with little or no computer skills. ❑

EPIEgram
Software and Systems for Learning
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Opinion

Nobody Asked Me, So....

Do educators ever agree on anything? Must educators forever keep proving the first law of physics that any force in one direction has an equal and opposite force in the other direction?

Take Head Start. Some studies suggest that the Head Start children are less likely to fail a grade or to need special education. Others say that after three years, one can't tell a Head Start child from any other.

Everyone agrees on one thing at least: the cost of education keeps rising, the results keep falling.

We think the time for tinkering is past. Change of a Draconian nature not only seems inviting but necessary. Just as war is too important to be left to the military, education is too important to be left to educators.

Bureaucracies have their own built-in failure systems. The purpose of the bureaucracy is to assure its own survival; but the single-minded pursuit of that goal diminishes the justification for its existence.

New York was rocked recently by the million-dollar benefits for a retiring education official. Subsequent investigations show that salaries of more than $100,000 for administrators are not uncommon, with many back-door percs such as personal loans and mortgages, payment for hundreds of days of accrued sick leave, paid-up life insurance policies, plus, of course, pensions.

Parkinson, whose famous law decreed that work always expands to fill the available time, also found that bureaucracies grow at a constant rate of about 5% whatever the government, in good times or bad, and whether there is more work or less work for them to do. It is almost a truism that a government project, once started, can never be eradicated – and some $5 million was recently appropriated to keep President Bush's Points of Light Foundation going. Would anyone have missed it other than those in its employ?

Different Kinds of Intelligence

Having scored high on the Stanford-Binet test long years ago, we naturally had a certain affection for it; but we have come to recognize what we always sort of knew: that there are many different kinds of intelligence, and it is time those concerned with the education of children recognized it. Although ours is a country which presumably exhalts individuality, our schools appear to want to make everyone appear made from the same mold.

Earl L. Fultz
Editor & Publisher

"Anyone who wants to be chancellor of the New York City schools should be automatically disqualified."

– Felix Rohatyn, financier.

❦

"You could draw a 'Keystone Cops' image here of people charging off in different directions and bumping into each other and, in some instances, having a conflict with one another. There's no sense of where the problem is and how we should work together to get there."

– Ernest L. Boyer, President, Carnegie Foundation for the Advancement of Teaching, commenting on many efforts for school reform.

❦

"It would be a great irony at this moment if we centralize the school system into a single national system. We are coming to understand that you can't run the system with top-down rule-making. The actual coordination has to be closest to kids."

– Lauren B. Resnick, Director, Learning Research and Development Center, University of Pittsburgh.

"They have taken our money, betrayed our trust, failed our children, then lied about the failures with inflated grades and pretty words."

– Thomas Sowell, *Inside American Education, The Decline, The Deception, The Dogmas.*

❦

"The strongest force in the school-finance world is inertia. Everything is based on what happened before."

– John Augenblick, school-finance consultant.

❦

"[At present] people are essentially retrieving archival information; but the technological capabilities are there and fairly quickly people will realize that you don't need the public school system to access the best minds in the world."

– Lewis J. Perelman, *School's Out: Hyperlearning, the New Technology, and the End of Education.* ❑

EPIEgram

The Newsletter of Software and Systems for Learning

Volume 19, Number 8 May 1993

Ethical Use of Information Technologies in Education

U.S. Department of Justice Study Addresses Important Ethical Issues for America's Schools

(Excerpted from report prepared for the National Institute of Justice by Jay P. Sivin and Ellen R. Bialo of Interactive Educational Systems Design (IESD) of New York.)

From the Foreword

Plato posed the central ethics issue addressed in this publication in *The Republic*: "Suppose you had a ring which, when you turned the stone, made you invisible. Why, then, should you act justly?"

The same question faces today's computer user who, with technology's aid, can effectively become invisible. How do we best assure the just and effective use of the new technologies that are an increasingly vital part of both our personal and professional lives?

The increasing use and importance of computers has resulted in the rapid growth of such practices as piracy, fraud, information destruction, and telecommunications abuse. Computer crime is generally on the rise, creating increasingly serious problems for law-enforcement officials.

We believe the ethics issues need to be addressed from kindergarten through graduation – and computer-ethics education programs need to involve students, teachers, administrators, school-board members, parents, and community and business leaders.

Jay P. Sivin and Ellen R. Bialo are former Directors of Software Evaluation for EPIE Institute (1984-88) and contributors to EPIE Institute's ILS evaluations in 1990. Issues and Practices in Criminal Justice *is a publication of the National Institute of Justice. This report appeared in the May 1992 issue.*

Some Scenarios Dealing with Ethics:

☛ Elementary school with tight budget. Teachers make illegal copies of commercial, educational software programs which they distribute to colleagues.

☛ Middle-school students are encouraged to practice writing skills by sending electronic mail to one another over the school network. One student sends an obscene story to several friends; the story is given wide distribution on the network. When confronted by school authorities, the student maintains he has the right to send personal mail of any sort to his friends.

☛ High-school teacher sets up an electronic bulletin board. Over time a network of students learn how to pull off various "pranks," including distribution of stolen long-distance phone access codes, and introduction of a virus program which destroys data on the system and eventually causes it to crash. Before reinstalling the bulletin board, teacher and students must set up rules for future users and ways to enforce the rules.

☛ A teacher shows her students how to combine text, graphics, video segments, digitized voice and music to create computerized multimedia presentations that can then be transferred to video tape. The students capture music from audio CDs and use graphic images from books without obtaining rights. The teacher distributes copies of the video tape to colleagues from other schools – then worries that she may be in violation of copright laws.

continued on page 13

SCISS/TESS Update
Begins on Page 5

The Latest
Language Software
from *TESSI*
Plus Some Early-Learning Programs

Eight Colossal Pages
of Program Data and Descriptions

In the NEWS

"Many a Slip...

...twixt cup and lip," is the prognosis for the Clinton Administration's plans to establish a full-blown youth apprenticeship system during the next two years. Just about everyone thinks the idea has merit and figures show that today's high-school graduate without any post-secondary education earns an average of 15% less than a 1979 graduate.

Critics note that for even 15% of students age 16 to 20 to participate in an apprenticeship would require one of every five employers nationwide to offer at least one apprenticeship slot. Another aspect of the problem is that labor organizations are afraid that a system of apprenticeships could create a reservoir of non-union employees.

However, many states won't be waiting for a federal program. Five (Arkansas, Georgia, Maine, Oregon, and Wisconsin) have enacted legislation to create their own youth-apprenticeship systems; and ten others, including California, Texas, and Vermont, are expected to consider such bills this year.

Secretary of Education Richard W. Riley considers youth apprenticeship essential to "radically rethinking and restructuring the high-school years. Most young people," he notes, "can only be motivated to take academically challenginig courses if they can see a connection betwen the classroom knowledge and its application in the wider world."

Robert B. Reich, the tiny but brainy Secretary of Labor, is concerned that the United States is creating a "two-tier society" of skilled and unskilled workers. He considers the federal role should be one which provides direction but is not so inflexible that it deters innovation at the local level.

Money Must Reach Classroom Says C of C

"Unless the money is reaching the classroom, the child, the teacher," says Dr. Bruce Cooper, "it's not reaching the resource." Dr. Cooper is professor of education at Fordham University and the chief researcher on a U.S. Chamber of Commerce study on school budgets.

The recently released study, known as the Lilly School Finance Project, is an undertaking of the Chamber's Center for Workforce Preparation and Quality Education. Researchers examined the financial records of eight school districts and organized their expenditures using a simple spending model. Most schools, it found, fall far short of the ideal goal of 75% to 80% of school spending reaching the classroom.

Nationally, the figure is 61%. In the study, classroom expenses ranged from 54% to 63%. The model is a refined version of one used to track spending in New York City public schools; in that study only 33% of available budget was found to reach the classrooms.

Somewhat typical was the Charlotte-Mecklenburg County School District in North Carolina, where the study identified more than $4 million in administrative costs that could be moved into academic programs. In Nashville, the study revealed that 25% of the budget went to maintain the system's old and dilapidated buildings.

The other districts in the study were: Alameda County, California; Bartlesville, Oklahoma; Great Falls, Montana; Jefferson County, Colorado; and Spartanburg County, South Carolina. The study was funded by a grant from the Lilly Endowment, a charitable foundation in Indianapolis.

For a free copy of the report, fax a request to: Larry Maloney, Center for Workforce Preparation and Quality Education, U.S. Chamber of Commerce, 202 887-3445.

Bungled Phone Bills Suck Millions from Trusting Pigeons

Communications Week reports that errors on telephone bills are costing organizations *el mucho dinero* – sometimes millions of dollars. Account-review companies such as Tele-Review (Jericho, New York) are finding big discrepancies between real usage and the bills. A brokerage company in New York found that it had lost $5.8 million between 1984 and 1989 to bill errors; and the New York City Department of Housing—usually something less than a paragon of efficiency—hauled in a $1.7 million refund from New York Telephone. Had the statute of limitations on earlier overcharges not expired, the refund would have been larger yet. With some auditors finding errors on almost half of their clients' phone bills, phone-bill auditing looks like a growth industry. At present, much onerous drudge work is required in auditing the bills; but more and more companies will begin using computers to dial routine telephone calls, making automatic reconciliation possible. Many communications programs and even PIMs will dial a phone number for the user; but few will keep a record of the calls. Industry pundits see this as a growth area in utility programs.

Besides actual errors in telephone bills, schools, government agencies, and businesses which have leased high-performance lines may be routinely handing over sacks of money for lines which they stopped using years ago when, as modem technology advanced, their need for special cables to move their data evaporated. Other organizations have found to their horror that the order to remove the leased line was ignored; or that they are still being charged buckets o' gold for leased lines which were indeed removed in actuality – but not from the cyberspace of the automated billing programs!

Virtual Library

The Columbia University Law Library has begun creating a "virtual library" which can find and display on a computer screen the image of an actual printed page, retrieved from a database of millions of such images. The system, which is called Project Janus, is the first library application of the search and retrieval of "full-text" images. The researcher can have the computer churn through its entire database for any word, phrase, or text and then retrieve an

continued on following page

image of the actual printed pages or documents in which the string occurs.

Alibi Eyes

Student excuses from the the American Psychological Society magazine, the *APS Observer*:

"My paper is late because I lost a pair of eyeballs and I couldn't do anything until I found them." (Turned out to be true: the student worked in an eye bank.)

"I had an accident. The police impounded my car and the paper was in the glove compartment."

"I'm too happy to give my presentation tomorrow." (The teacher managed to remove that obstacle.)

Two students, after sitting together during an exam, were asked to explain why their answer sheets had identical responses to different versions of the test. "Obviously," said one, "it's because we studied together."

NASDC Faltering

The resignation of Ann D. McLaughlin as president and CEO of the New American Schools Development Corporation pointed up the difficulties of that organization. Created during the Bush Administration as a private, not-for-profit foundation to create a generation of "break the mold" schools, the NASDC has fallen far short of its goal to raise $200 million from private sources ($48 million thus far). One problem is that business leaders are waiting to see the Clinton administration's view of NASDC's future.

Meanwhile, in Gastonia, North Carolina, the "Odyssey Project," an effort to restructure three of the district's 54 schools with a $2.1 million grant from NASDC (one of eleven such projects), has run into considerable opposition. Among the changes: a longer school day and year, coordinated education, health and social services, and early-childhood schooling.

Reform Schools

The movement to reform schools is happening all over America. The state of Oregon, for example, has some well-advanced programs, some launched as early as 1985. Typical reforms include multi-age classes, team-teaching, cooperative learning, and teacher teams that stay with the students for two or three years.

Kentucky mandated in its somewhat radical 1990 reform law that all schools should establish multi-age, multi-ability K-3 primary units by 1994. California is pushing to retain its image as the trend-setting state; Missouri's Project Construct, centered at the University of Missouri, is promoting the new framework in Missouri and other states. Nebraska and Iowa are drawing on materials developed by the Ministry of Education in British Columbia.

Not all is without turmoil. Experts note that the new vision of elementary schools is coming in fits and starts; however, to quote one observer: "Even if people are teaching in the old way, they know they shouldn't be; eventually, their teaching may catch up with their perceptions."

99.9% Not Good Enough

Students who settle for "good enough" instead of zero defects might benefit from knowing what life would be if things were done right only 99.9% of the time: 16,000 pieces of mail lost by the U.S. Postal Service every hour (sounds about right); 500 botched surgical operations every week (but will settle for that); 50 newborn babies dropped by the obstetrician every day (that might explain math scores); and 22,000 checks deducted from the wrong bank accounts every hour.

Grants for Technology for Disabled

NEC Foundation of America has announced grants totaling $185,000 to seven organizations to support programs that share a common focus on science and technology education and assistive technologies for people with disabilities. The grants included:

$20,000 to EDUCOM in Washington, D.C. toward completing development of the Project EASI (Equal Access to Software and Information) Seminar Series to help colleges and universities use adaptive computer technology in support of students and faculty with disabilities. Project EASI follows EDUCOM's agenda for integrating technology into classrooms, curricula, and research. It addresses general facilities and support, discipline-specific computing, including math and science; and academic support, such as using computers for reading, writing exams, and taking notes.

$10,000 to the Evelyn Aronow-Dolan Foundation, Hackensack, New Jersey, for expansion of the Disabilities Electronic Network, a multi-line computer bulletin board and interactive communications network operated by and for people with disabilities, to include a national network of high-school computer clubs for students with and without disabilities. The network will include a teleconference for the math and science teachers of participating schools.

$30,000 to the Foundation for Technology Access, Albany, California, for extension of Models for Integration: Science & Technology to additional schools. The project tests and demonstrates new ways of integrating secondary-level students with disabilities into mainstream science programs through the use of computers.

Information Technology Boosted

"Innovation in Education: Information Technology Opportunities," a study by Killen & Associates, examines public education and the application of information technology to a newly defined national education program of lifelong learning. The study proposes that new measures in education and information technology can reduce our nation's "opportunity gap" and stem the drain of human and financial resources.

The study stresses the education of children as the nation's highest priority. "Nothing less than a 'Manhattan Project' or 'Man on the Moon' commitment is needed to attack all aspects of this problem," said Michael Killen, president of the research firm. "But that isn't likely to happen."

So, the next best and most promising approach is to apply information technology to the national education challenge.

"Children from varied economic and social backgrounds can learn on their own, even at home, if they have the needed tools," said Killen. "The limits of schools to solve today's problems are creating a multi-billion dollar opportunity for information technology. We see major business opportunities for applying IT to education." □

THE STATES CONSORTIUM FOR IMPROVING SOFTWARE SELECTION
SCISS
TESS
THE EDUCATIONAL SOFTWARE SELECTOR
UPDATE

The Latest of TESS Programs (Chiefly for the Macintosh) of Language From Aesop to Latin

Aesop's Fables
Discis Knowledge Research
Reading: Comprehension Skills
Grades 1-5
Covers the tales traditionally attributed to the legendary Aesop. Student can ask the book to "read" favorite passages, to explain or pronounce unfamiliar words, and even to identify objects in the accompanying pictures. Provides interaction with the tales to improve understanding. Program includes both English and Spanish. One of the *Discis Books*. Average lesson 60 minutes. Copy protected. Requires CD-ROM drive.
Macintosh 512E, $79.95; Commodore Amiga, $49.95.

A+ French Tutor
Queue
Foreign Language: French
Grades 6-College
A complete French grammar course, plus coverage of French vocabulary and reading comprehension. Special bonus programs in German, Latin, and Italian. The programs offer students a high level of interactivity, immediate feedback, and remediation after each wrong answer. Requires CD-ROM drive.
Macintosh 512E; IBM PC and compatibles, $195.

The Alphabet for Everyone
Intellimation
Early Learning and Preschool
Grades K-2
A *HyperCard* stack to help teach letter recognition, alphabetic order, and letter pronunciation. As each letter is presented, a digitized voice names it. On the screen, a word beginning with that letter appears, along with a graphic description. Requires *HyperCard*.
Macintosh Plus, $29

The American Heritage Dictionary
WordStar International
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Grades 5-College
Dictionary and thesaurus which is the electronic version of the dictionary by Houghton Mifflin. Contains 116,000 definitions and the complete *Roget's Thesaurus*. Operates as a desk accessory on the Macintosh. Students get immediate access to definition, spelling corrections, pronunciation, and more. Offers a reverse search capability called SearchText.
Macintosh Plus.

Aristotle's Greek Tragedy Construction Kit
Intellimation
Foreign Language: Other Languages
Grades 9-College
Works as a nonlinear, non-sequential tutorial and reference guide to Aristotle's *Poetics*. Students can use it to explore character, plot, verbal expressions, thought, song, staging, and lexicon in lab, lecture, and individual study. Quotations from the text are included. With click of a button, can translate Greek to English or English to Greek. Requires *HyperCard*.
Macintosh Plus, $45.

A+ Spanish Tutor
Queue
Foreign Language: Spanish
Grades 7-College
A complete tutorial package in Spanish, including interactive lessons in vocabulary, grammar, and reading comprehension. Forty-two programs on one CD-ROM provide excellent feedback on incorrect answers, good online help, and intuitive accenting of letters. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $295.

At the Zoo
Gessler Publishing Company
English and Language Arts: English As Second Language
Grades 1-10
An interactive picture book, this *HyperCard* program combines spelling, visualization, and pronunciation by native speakers. Students can click on an object to see its name spelled and hear the name pronounced. They learn the vocabulary of animals and

objects *At the Zoo*. Requires *HyperCard*.
Macintosh Plus, $39.95.

Autoskill Component Reading Subskills
Autoskill International
Reading
Grades K-12
Includes an assessment and profile analysis of a student's reading skills in terms of subtypes of reading difficulties. Lesson content is tailored to address subtypes. Online word processor gives students opportunity to learn writing and editing skills. Keeps records.
Macintosh 512E, IBM PC and compatibles.

Au Zoo
Gessler Publishing Company
Foreign Language: French; Vocabulary
Grades 1-10
An interactive picture book, this *HyperCard* program combines spelling, visualization, and pronunciation by native speakers. Click on an object to see it spelled and hear its name pronounced. Viewers learn the vocabulary of animals and objects *Au Zoo*.
Macintosh Plus, $39.95.

Bailey's Book House
Edmark Corporation
Early Learning and Preschool
Grades Presch-1
Designed by early childhood experts, offers children six acvities to help them build key early reading skills. Interactive, multisensory, animated, and full of characters to enrich children's reading education. Requires 4MB RAM if using a color Mac.
Macintosh Plus. $59.95

Berlitz Think and Talk
HyperGlot Software Company
Foreign Language: Spanish; Vocabulary
Grades 9-College
Helps students learn Spanish, French, German, or Italian the way they learned their native language. Users listen to native speakers and repeat what they hear. Lively dialogues and scenes from 50 lessons filled with sound effects, witty graphics, and audio cues help students learn more than 1,000 words. Can even record user's own voice into the program to compare with the teacher's voice. Requires *HyperCard* and CD-ROM drive.
Macintosh Plus.

The Best Literature Workbook Ever
Queue
Reading: Comprehension Skills
Grades 4-12
A collection of reproducible student worksheets and software tutorials which offers a comprehensive survey of literature. Questions test and reinforce comprehension of the reading passages as well as critical reading and evaluative thinking skills. Ditto masters included. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $195.

Big Thesaurus
Deneba Software
Comprehensive: Generalized Tool Programs; Word Processors
Grades 3-College
An interactive thesaurus desk accessory that can display more than 1.4 million combinations of synonyms and antonyms, and related, compared, and contrasted words. Includes more than 100,000 words, organized by meaning as opposed to parts of speech, and includes a separate definition for each group.
Macintosh 512E, $49.50.

Blank-It!
Intellimation
Reading: Comprehension Skills
Grades 4-6
Students read a story with selected words and letters blanked out. Context clues help them fill in the blanks. Students can write original stories or select previously saved stories. For use with individual students or groups; teacher can list relevant questions and rules of grammar for each story on a pop-up menu. Requires *HyperCard*.
Macintosh Plus, $29.

Book Report Series
Intellimation
Reading: Vocabulary
Grades 7-12
Illustrated, interactive programs which encourage young readers to explore the classics. They meet the main characters and enjoy engaging illustrations. Teachers can add comments about the plot. Helps build vocabulary and comprehension, because difficult words are defined. Includes an optional vocabulary quiz. Answers to embedded questions are automatically formatted into a detailed book report. Includes *The Adventures of Huckleberry Finn, Animal Farm, The Call of the Wild, Cyrano de Bergerac, Hamlet, Macbeth*, and *Romeo and Juliet*. Requires *HyperCard*.
Macintosh Plus, stories $39 each, lab pack $156.

Chinese Writing Tutor
HyperGlot Software Company
Foreign Language: Other Languages
Grades 9-College
Extensive tutorial on Chinese writing systems, both standard and simplified. Covers basic strokes for composing characters. Animated stroke-order rules. Fifty-two important radicals in tutorial with variant forms and simplified versions. Pronunciation presented in Pinyin. Extensive notes throughout. More than 250 common characters. Exercises and illustrated practice drills for radical and character recognition. Requires *HyperCard*.
Macintosh Plus.

Cinderella
Discis Knowledge Research
Reading: Comprehension Skills
Grades K-3
Provides interaction with the story to improve understanding. A poor but beautiful young girl wins the heart of a prince with the help of her fairy godmother. Students can ask the book to "read" favorite passages, to explain or pronounce unfamiliar words, and even to identify objects in the accompanying pictures. One of the Discis Books. Average lesson 30 minutes. Copy protected. Requires CD-ROM drive.
Macintosh 512E, Commodore Amiga, $49.95.

Conference Writer
Research Design Associates
English and Language Arts: Basic Skills; Composition and Writing
Grades 5-12
A *HyperCard* program that establishes collaborative peer writing groups on a Macintosh network. Allows instructors to create up to twelve writing groups and assign group members. Each member of a group sees everything everyone in the group writes as it appears in a Transcript Window. Network version available.
Macintosh 512E, $249.

Correctamente
Medina Software
Foreign Language: Spanish; Vocabulary
Grades 7-College
Spanish-language dictionary. Checks spelling of 80,000 Spanish words, including accented words. Documentation comes in English and Spanish. Requires Microsoft *Word*.
Macintosh Plus, $26.36.

Correct Grammar for the Macintosh
WordStar International
Comprehensive: Generalized Tool Programs; Word Processors
Grades 5-12
An interactive grammar, spelling, and style-checking application. In a single pass through a document, it will highlight phrases containing questionable grammar, spelling, syntax, punctuation, and style, and suggest alternatives. The context-sensitive tutorial provides grammatical rules and examples which explain to students the suggested corrections.
Macintosh Plus, $99.

Correct Writing
WordStar International
Comprehensive: Generalized Tool Programs
Grades 4-12
An online reference tool that offers comprehensive guidelines for proper style, punctuation, and writing techniques. Appears on the student's screen like a spiral-bound notebook. Students merely click on the subjects they want to learn more about; there are no commands to learn and nothing to type.
Macintosh Plus, $59.95.

Das Haus
Gessler Publishing
Foreign Language: German: Vocabulary
Grades 1-10
An interactive picture book, this *HyperCard* program combines spelling, visualization, and pronunciation by native speakers. Students can click on an object to see its name spelled and hear the name pronounced. They learn the vocabulary of objects in a home. With a second disk, students can test themselves. Requires *HyperCard*.
Macintosh Plus, $39.95.

Developing Writing Skills
Queue
English and Language Arts: Basic Skills; Composition and Writing
Grades 6-12
Hundreds of hours of interactive lessons help learners of all ages fine-tune their writing skills. A variety of question formats maintains students interest. Immediate feedback tells students their answers are correct. Titles includes: Learning to Write, Basic English Composition Package, Developing Writing Skills, Practicing Writing Skills, Practical CompositionSeries, Dictionary Skills, How to Do Research, and Usage. Requires CD-ROM drive.
Macintosh 512E, $295.

A Discis Book: Heather Hits Her First Home Run
Discis Knowledge Research
Reading: Comprehension Skills
Grades 1-4
Certified P.C., this is a story of how children feel in life's crucial moments. Students can ask the book to "read" favorite passages, to explain or pronounce unfamiliar words, and even to identify objects in the accompanying pictures. Provides interaction with the story to improve understanding. Program includes both English and Spanish. One of the Discis Books. Average lesson 60 minutes. Copy protected. Requires CD-ROM drive.
Macintosh 512E, $89.95; Commodore Amiga, $49.95.

A Discis Book: Journey Emergent Level One
Discis Knowledge Research
Reading: Comprehension Skills
Grades Presch-1
A variety of stories, poems, and songs with illustrations and photographs. Students can ask the book to "read" favorite passages, to explain or pronounce unfamiliar words, and even to identify objects in the accompanying pictures. Provides interaction with stories, poems, and songs to improve understanding. Part of the Journeys Series. One of the Discis Books. Average lesson 60 minutes. Copy protected. Requires CD-ROM drive.
Macintosh 512E, $79.95.

A Discis Book: A Long Hard Day on the Ranch
Discis Knowledge Research
Reading: Comprehension Skills
Grades K-5
Tale shows how a young boy imagines his days at the ranch, while

accompanying illustrations show more mundane reality. Students can ask book to "read" favorite passages, to explain or pronounce unfamiliar words, and even to identify objects in accompanying pictures. Provides interaction with story to improve understanding. Program includes both English and Spanish. One of the Discis Books. Average lesson 60 minutes. Copy protected. Requires CD-ROM drive.
Macintosh 512E, $74.95; Commodore Amiga, $49.95.

A Discis Book: Moving Gives Me a Stomach Ache
Discis Knowledge Research
Reading: Reading Readiness
Grades 1-6
Explores children's feelings about moving. Students can ask the book to "read" favorite passages, to explain or pronounce unfamiliar words, and even to identify objects in the accompanying pictures. Provides interaction with the story to improve understanding. Programs include English and Spanish or English and Cantonese. One of the Discis Books. Average lesson 60 minutes. Copy protected. Requires CD-ROM drive.
Macintosh 512E, $89.95; Commodore Amiga, $49.95.

A Discis Book: The Night Before Christmas
Discis Knowledge Research
Reading: Comprehension Skills
Grades 1-4
Covers the classic poem of Santa Claus and his Christmas Eve ride by Clement Moore. Students can ask the book to "read" favorite passages, to explain or pronounce unfamiliar words, and even to identify objects in accompanying pictures. Provides interaction with the story to improve understanding. Program includes both English and Spanish. One of the Discis Books. Average lesson 60 minutes. Copy protected. Requires CD-ROM drive.
Macintosh 512E, $79.95; Commodore Amiga, $49.95.

A Discis Book: The Paper Bag Princess
Discis Knowledge Research
Reading: Comprehension Skills
Grades 1-3
A tale of a heroine who outsmarts a fierce dragon and learns an important lesson about love. Students can ask the book to "read" favorite passages, to explain or pronounce unfamiliar words, and even to identify objects in the accompanying pictures. Provides interaction with the story to improve understanding. Program includes both English and Spanish. One of the Discis Books. Average lesson 60 minutes. Copy protected. Requires CD-ROM drive.
Macintosh 512E, $74.95; Commodore Amiga, $49.95.

A Discis Book: Scary Poems for Rotten Kids
Discis Knowledge Research
Reading: Comprehension Skills
Grades 3-6
Students are introduced to poetry through humorous, scary poems. Students can ask the book to "read" favorite passages, to explain or pronounce unfamiliar words, and even to identify objects in the accompanying pictures. Provides interaction with the poems to improve understanding. Program includes both English and Spanish. One of the Discis Books. Average lesson 60 minutes. Copy protected. Requires CD-ROM drive.
Macintosh 512E, $89.95; Commodore Amiga, $59.95.

A Discis Book: The Tale of Peter Rabbit
Discis Knowledge Research
Reading: Comprehension Skills
Grades Presch-2
The classic tale of naughty Peter Rabbit, written and illustrated by Beatrix Potter. Students can ask the book to "read" favorite passages, to explain or pronounce unfamiliar words, and even to identify objects in accompanying pictures. Provides interaction with the story to improve understanding. Programs include English and Spanish or English and Cantonese. One of the Discis Books. Average lesson 60 minutes. Copy protected. Requires CD-ROM drive.
Macintosh 512E, $89.95; Commodore Amiga, $59.95.

A Discis Book: The Tale of Benjamin Bunny
Discis Knowledge Research
Reading: Comprehension Skills
Grades K-3
Beatrix Potter's story about the raid by the rodents Benjamin Bunny and Peter Rabbit upon Mr. McGregor's garden, where they are confronted by a stalwart cat. Students can ask book to "read" favorite passages, to explain or pronounce unfamiliar words, and even to identify objects in accompanying pictures. Provides interaction with the story to improve understanding. Program includes both English and Spanish. One of the Discis Books. Average lesson 60 minutes. Copy protected. Requires CD-ROM drive.
Macintosh 512E, $74.95; Commodore Amiga, $59.95.

A Discis Book: Thomas's Snowsuit
Discis Knowledge Research
Reading: Comprehension Skills
Grades K-2
Everyone tries to get Thomas into his detested new snowsuit, and everyone ends up wearing it instead! Students can ask book to "read" favorite passages, to explain or pronounce unfamiliar words, and identify objects in accompanying pictures. Provides interaction with story to improve understanding. Programs include English and Spanish or English and French. One of the Discis Books. Average lesson 60 minutes. Copy protected. Requires CD-ROM drive.
Macintosh 512E, $79.95; Commodore Amiga, $49.95.

Drills in Kana
HyperGlot Software Company
Foreign Language: Other Languages
Grades 9-College
Tutorials on stroke order with animation. Students hear syllables pronounced by native speakers. Flash drills for learning quick recognition of kana and association of sound and shape of characters. Drills in random order. Word pronunciation drills

consist of kana students have already learned. Reading drills exercise students on their ability to recognize words written in kana and to test oral comprehension of words. Words are illustrated so student may recall them without seeing them written. Difficult words may be marked for redrill. Worksheets can be printed so student can practice writing the kana when away from computer. Requires *HyperCard*.
Macintosh Plus.

Editorial Advisor
Petroglyph
Comprehensive: Generalized Tool Programs; Word Processors
Grades 9-College
A set of *HyperCard* stacks designed as a comprehensive online reference for writers. Covers grammar, punctuation, style, usage, composition, citations, indexing, capitalization, treatment of numbers, hyphenation, use of italics, and other editorial conventions. Provides guidance in thousands of matters important to writers.
Macintosh 512E.

The Elements of Style
Microlytics Corp
English and Language Arts: Basic Skills; Composition and Writing
Grades 9-College
A grammar and structure reference tool based on the work of William Strunk and E. B. White. A tool to help make writing crisp, succinct, and powerfully effective, and not like this description.
Macintosh 512E, IBM PC and compatibles.

Emergent Level Two
Discis Knowledge Research
English and Language Arts: Comprehension Skills
Grades K-2
A variety of stories, poems, and songs with illustrations and photographs. Students can ask the book to "read" favorite passages, to explain or pronounce unfamiliar words, and even to identify objects in accompanying pictures. Provides interaction with stories, poems, and songs to improve understanding. Part of the Journeys Series; one of the Discis Books. Average lesson 60 minutes. Copy protected. Requires CD-ROM drive.
Macintosh 512E, $79.95.

En el Zoologico
Gessler Publishing
Foreign Language: Spanish; Vocabulary
Grades 1-10
An interactive picture book, this *HyperCard* program combines spelling, visualization, and pronunciation by native speakers. Students can click on an object to see its name spelled and hear the name pronounced. They learn the vocabulary of animals and objects *At the Zoo*. Requires *HyperCard*.
Macintosh Plus, $39.95.

English Express
E. David & Associates
English and Language Arts: English As Second Language
Grades 5-12
Combines interactive software with speech, visuals, sound, and text for ESL students. Offers students opportunities for listening, speaking, reading, and writing English. Includes 60 categories of words, 1,500 color images, and teacher training materials. Contact supplier for price. Requires sound digitizer.
Macintosh 512E.

English Grammar Computerized II
International Software
English and Language Arts: Basic Skills; Grammar and Usage
Grades 7-12
Contains 15 review and practice lessons on grammar structures. Lessons reinforce standard textbook presentations on verb tenses, modals, nouns, pronouns, interrogatives, comparatives, and indirect objects. Each lesson contains 50 practice items with answer-judging capability and easy access to help screens. Network version available.
Apple II Series, Macintosh 512E, $49.95.

French Flash
International Software
Foreign Language: French; Vocabulary
Grades 7-12
Vocabulary drill with unlimited space for teachers or students to add their own custom vocabulary entries; can provide synonym, definition, and sentence context. Offers scoring and printed tests. Network version available.
Apple II Series, Macintosh 512E, IBM PC and compatibles, $39.95; site license or network version, $150.

French Reading Lab I: Three by Maupassant
HyperGlot Software Company
Foreign Language: French
Grades 9-College
Offers three very different but representative short stories by the acclaimed nineteenth-century author Guy de Maupassant. The product includes everything the user needs to begin reading French masterpieces. Features on-screen French-English dictionary, extensive glosses, font enlargement buttons, interactive exercises, audio-cassette tape read by a native speaker of French, background notes, biographical information on author, and a variety of printing options. Requires *HyperCard*.
Macintosh Plus.

Gateway Stories
Don Johnston Developmental Equipment
Reading: Reading Readiness
Grades Presch-2
Student or teacher can select a story. Students listen to text and turn pages with mouse click. Includes the book *Mouse Tales* by Arnold Loebl. Requires *HyperCard*.
Macintosh Plus, $125.

German Contest/Achievement Prep
International Software
Foreign Language: German
Grades 7-12
Contains several hundred multiple-choice questions with answers and commentary from standard exams. Included are both grammar and culture. An online dictionary provides vocabulary help. Items are in ASCII format, making this program accessible to teachers who wish to add or modify questions or comments. Network version available.
Apple II Series, Macintosh 512E, IBM PC and compatibles, $49.95; site license or network version, $180.

German Flash
International Software
Foreign Language: German; Vocabulary
Grades 7-12
Vocabulary drill with unlimited space for teachers or students to add their own custom vocabulary entries; can provide synonym, definition, and sentence context. Offers scoring and printed tests. Network version available.
Apple II Series, Macintosh 512E, IBM PC and compatibles, $39.95; site license or network version, $150.

German Passive Voice Tutor
HyperGlot Software Company
Foreign Language: German; Grammar and Usage
Grades 9-College
Informative tutorial and drill on passive voice formation. Includes 150 sentences that cover present, simple past, present perfect, past perfect, future, and subjunctive tenses. Sentences are given in the active voice and user must rewrite them in the passive voice. Extensive online help and parsing feature guide users word by word to the correct answer as they construct their answer sentence. Help also includes plural forms of nouns, translations, and past participles of verbs. Also covers questions, modals, subordinate clauses, dative double objects, *lassen* plus infinitive, and *sein* plus infinitive. Requires *HyperCard*.
Macintosh Plus.

Hagar the Polyglot
Gessler Publishing
Foreign Language: Spanish; French; Grammar and Usage
Grades 9-College
Available in Spanish (*Olafo el terrible*) and French (*Hagar le terrible*). The user encounters contextual, authentic language. Contains a grammar analysis and glossary for each word, grammatical exploration, and an English translation. The user sees multiple examples of the same kind of language use (complaints, questions, exclamations, etc.), creates personal responses, and interacts with Hagar. For the the second- and third-year learner. Requires *HyperCard*.
Macintosh Plus, $69.95.

The House
Gessler Publishing
English and Language Arts: English As Second Language
Grades 1-10
An interactive picture book, this *HyperCard* program includes spelling, visualization, and pronunciation by native speakers. Students can click on an object to see its name spelled and hear the name pronounced. They learn the vocabulary of objects in a home. With a second disk, students can test themselves. Requires *HyperCard*.
Macintosh Plus, $39.95.

Idealiner
Intellimation
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Grades 7-College
Helps students develop outlines by automating standard outlining methods. Number and letter labels are inserted automatically before headings. Students can prepare outlines with or without labels, subtopics, or window notes. They can save their work in *Idealiner* format, as text files, or in any text format.
Macintosh 512E, $45.

Ideal Language Arts Series
Ideal Learning
English and Language Arts: Basic Skills; Multiple Topics
Grades 3-10
This is a full-year course designed to utilize all of the capabilities of the Mac LC, such as sound, high-resolution color graphics, and animation. Each objective has a pre-test and a post-test for determining the path students will take through the teaching of the skill. Each unit includes modeling and guided and individual practice designed to culminate in a high-order thinking activity. The course is appropriate for all students, including those in special programs such as ESL, Chapter I, and gifted. It is sequentially designed and can be easily correlated with local and state objectives. Operates under Ideal Learning's *PODIUM Curriculum Manager.*
Macintosh LC, $2,000 per grade.

Ideal Learning Reading Series
Ideal Learning
Reading
Grades 4-8
This is a full-year course designed to utilize all of the capabilities of the Mac LC, such as sound, high-resolution color, graphics, and animation. Each objective has a pre-test and post-test for determining the path the students will take through the teaching of the skill. Each unit includes modeling and guided and individual practice designed to culminate in a high-order thinking activity. It is appropriate for all students, including those in special programs such as ESL, Chapter I, and gifted. It is sequentially designed and can be easily correlated with local and state objectives. Operates under Ideal Learning's *PODIUM Curriculum Manager.*
Macintosh LC, $2,000 per grade level.

Im Zoo
Gessler Publishing
Foreign Language: German; Vocabulary
Grades 1-10
An interactive picture book, this *HyperCard* program combines spelling, visualization, and pronunciation by native speakers. Students can click on an object to see its name spelled and hear the name pronounced. They learn the vocabulary of animals and objects *At the Zoo*. Requires *HyperCard*.
Macintosh Plus, $39.95.

Interactive Storybook
Intellimation
Reading: Reading Readiness
Grades K-3
Uses art and interactive graphics to make children's tales come magically alive. Based upon Piaget's cognitive theories, these total language arts experiences encourage children to explore appropriate language concepts through the use of written, spoken, and pictorial media. Series include: *The Gingerbread Man, The Tortoise and the Hare*, and *The Shepherd and the Coyote*.
Macintosh Plus, individual story, $62; entire series, $169; series lab pack, $676.

Introduction to Russian
HyperGlot Software
Foreign Language: Russian
Grades 5-College
An introduction to the Russian language. Teaches students the sounds of Russian (with extensive digitized sound recorded by native speakers of Russian), the Cyrillic alphabet, how to read Russian words, and an introduction to Russian grammar with brief exercises. Requires sound generator and 8MB RAM.
Macintosh 512E, $39.95.

Italian Flash
International Software
Foreign Language: Italian
Grades 7-12
Vocabulary drill with unlimited space for teachers or students to add their own custom vocabulary entries; can provide synonym, definition, and sentence context. Offers scoring and printed tests. Network version available.
Apple II Series, Macintosh 512E, IBM PC and compatibles, $39.95; site license or network version, $150.

Je Conjugue
Editions Ad Lib
Foreign Language: French; Grammar and Usage
Grades 5-College
Offers students a way to practice conjugating French verbs, using four different learning activities: exploration, practice, test, and competition.
Apple II+/IIe/IIc/IIgs, Macintosh 512E, IBM PC and compatibles, $69.95.

KanjiMaster
HyperGlot Software
Foreign Language: Japanese
Grades 7-College
More than 325 characters and hundreds of compound words reproduced in digitized sound recorded by a native speaker of Japanese. Provides browse mode, pronunciation drill, English-meaning drill, Japanese drill, dictation drill, and stroke-order drill.
Macintosh 512E, $149.95.

La Casa
Gessler Publishing
Foreign Language: Spanish; Vocabulary
Grades 1-10
An interactive picture book, this *HyperCard* program combines spelling, visualization, and pronunciation by native speakers. Students can click on an object to see its name spelled and hear the name pronounced. They learn the vocabulary of objects in a home. With a second disk, students can test themselves. Requires *HyperCard*.
Macintosh Plus, $39.95.

La Maison
Gessler Publishing
Foreign Language: French; Vocabulary
Grades 1-10
An interactive picture book, this *HyperCard* program combines spelling, visualization, and pronunciation by native speakers. Students can click on an object to see its name spelled and hear the name pronounced. They learn the vocabulary of objects in a home. With a second disk, students can test themselves. Requires *HyperCard*.
Macintosh Plus, $39.95.

Language Master
Franklin Software
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Grades 5-College
Provides dictionary definitions for 80,000 entries and returns 1.4 million responses for 40,000 thesaurus entries. The dictionary contains definitions, usage notes, and hyphenation points. The thesaurus contains synonyms, antonyms, related words, compared words, and contrasted words separated into groups sharing a common meaning and part of speech.
Macintosh 512E, IBM PC and compatibles.

LanguageWriter
Research Design Associates
Comprehensive: Author Languages
Grades 9-College
A multimedia program that allows instructors to combine the written and spoken word. Users can hear as well as see text supplied by the instructor and can respond with sound or text.

The ability of the teacher to include recorded conversational materials along with the written texts is especially useful for students of foreign languages.
Macintosh Plus.

Latin Contest/Achievement Prep
International Software
Foreign Language: Latin
Grades 7-12
Contains several hundred multiple-choice questions with answers and commentary from standard exams. Included are grammar, culture, and reading. An online dictionary provides vocabulary help. Items are in ASCII format, making this program accessible to teachers who wish to add or modify questions or comments. Network version available.
Apple II Series, Macintosh 512E, IBM PC and compatibles, $49.95; site license or network version, $180.

Early Learning

Blocks Builder
KinderLink
Early Learning & Preschool
Grades Presch-3
Allows young children to create, build, and design. Includes three levels of difficulty. Pre-school contains only long block shapes; early school a larger variety of large block shapes; elementary 45 shapes. Many colors allow for creative designing. Can be used by children with no computer experience.
Macintosh Plus.

Educational Games for Young Children
Queue
Reading: Reading Readiness
Grades K-4
This collection from Spinnaker, Springboard, and Toucan features programs for development of early skills. Titles include: *Early Games for Young Children, The Boars Tell Time, How Many, Easy as ABC, Not Like the Others, What Comes Next,* and *Early Reader.* Requires CD-ROM drive.
Macintosh 512E, $95.

Just Grandma and Me
Broderbund Software
Reading: Reading Readiness
Grades K-2
The first in Broderbund's Living Books series. Based on the best-selling book of the same name (included) by Mercer Mayer, the award-winning author and illustrator. In this interactive, animated storybook, Little Critter and his Grandma go to the beach, where they have a series of stirring adventures. Little Critter takes a ride on a wind-blown umbrella, defends himself against a nasty crab, meets a variety of talented starfish, and much more. The program includes many unusual features: animations and sound effects; talking characters; original music; narration; simple interface for young children; multiple languages (Japanese, English, and Spanish); and interactive and read-only modes. These all combine to bring the story to life while reinforcing reading and word-recognition skills. Requires CD-ROM drive.
Macintosh LC, 80386-based PC, $49.95.

Kid Works 2
Davidson & Associates
Early Learning & Preschool
Grades Presch-4
Allows children to create and hear their own illustrated stories. Combines an easy-to-use word processor, paint program, and text-to-speech conversion, allowing children to learn to express their thoughts both visually and in writing.
Macintosh LC, $69.95.

Preschool Pack
Nordic Software
Aviation and Space Flight
Grades Presch-2
Six programs that use speech and color graphics to teach basic skills to preschoolers and first graders. Letter recognition, simple math, counting, and shape/pattern comparisons are emphasized. Short-term memory is also developed. The programs are simple and easy to use and understand.
Macintosh 512E, $69.95.

Rodney's Fun Screen
Activision Presentation Systems
Early Learning & Preschool
Grades Presch-2
Illustrator Rodney Greenblat presents a world of educational pastimes. With *Dinky's Playhouse*, children help Dinky complete tasks while going from room to room. Using *Imaginary Monsters*, they practice writing skills. With *Guess-O-Matic*, they practice alphabet and letter matching.
Macintosh LC, $49.95.

❑

Ethical Use continued from front page

☛ Students in a junior-high English class are asked to keep a daily word-processing diary. When one student is absent, another accesses and reads her diary entries, some of which reveal extremely private details of her life.

The foregoing, the authors note, are just a few of the ethical situations facing educators. They also note, however, that few school systems have policies and educational programs in place to address ethical issues as they relate to technology: physical and intellectual property rights; the right to privacy; and limitations on freedom of expression.

They also point out: "This time lag between the introduction of new technology and attempts to address its ethical implications is nothing new. Other technological advances such as nuclear energy and the automobile were implemented in our society long before their responsible use was fully considered."

And they point out that just as schools now offer driver-education courses to encourage the responsible use of automobiles, schools have a similar need to address the responsible use of computers and related technologies.

The Challenge

Computer-related crime is a growing problem. A national survey of urban police chiefs shows that 84% consider computer crime will have a serious impact on their future workload. Financial loss due to computer abuse is already conservatively estimated to be more than $5 billion annually. Civil libertarians are particularly worried about the invasion of privacy because computers are used to collect a wide variety of information and are easily "cracked."

How Technology Can Affect Ethical and Unethical Behavior

A child who would not think of searching through a classmate's desk to read a personal diary (and pick a lock on it) might feel free to access the same classmate's diary stored in a word-processing file on a network. A teenager who would never dream of robbing a bank might experience fewer qualms about attempting to steal funds from the bank electronically.

Possible explanations, the authors say: a) Technology removes one from reality, e.g. the book or the money. It becomes an abstract act. b) The perpetrator often believes he can escape detection. c) Information technology introduces "psychological distance;" there is no first-hand experience of harming others – one may not experience the other as a person at all.

Confusion Over Intellectual Property

Students and teachers may have a firm sense of right and wrong about physical property but may lack a similar concern about intangible (intellectual) property. If a car is stolen, the owner is deprived of the use of the car; if information is stolen from a computer network, the victim (usually) still has access to the information and may never realize a theft was committed. The perpetrator may well believe no one has been harmed.

Also: When we buy physical property (e.g. a bicycle), it is ours to do with as we wish. However, similar broad rights are rarely granted to owners of intellectual property.

What Schools Can Do

Schools have a major role to play in reinforcing traditional societal values and helping students to see how these values apply to the use of information technology. Schools should a) set policy and b) incorporate ethical issues into the curriculum.

Information Technology and the Law

Federal Copyright Protection for Computer Programs. A 1980 amendment to the 1976 Copyright Act, it gives computer programs the same basic protection as other original works of authorship.

Software License Agreements. Schools do not technically purchase software but, rather, purchase the rights to use it in the manner specified in the agreement.

Fair Use. Not defined in the 1976 Copyright Act but generally interpreted to include reproduction. Four factors are considered: 1) Purpose. Non-profit educational uses are usually considered acceptable. 2) The nature of the copyrighted work. 3) The amount and proportion of the whole copyrighted work used. The smaller the proportion, the more likely to be considered "fair." 4) The effect the use might have on the copyrighted work's market potential or value.

The book goes into useful detail on how to use cost-effective purchasing options for schools, how to employ "fair-use" to benefit your school, and various ideas for teaching ethics at various grade levels.

Summary

The potential for crime and abuse is on the rise and some applications of technology challenge our nation's core values (e.g., the right to privacy; the right to free expression). It is not new for our educational system to teach about ethics, but as the uses of educational technology increase, so does the ethical complexity.

Schools have a vital role to play in helping our children understand how existing values, policies, and laws apply to a rapidly changing world which is increasingly dependent on information technology. ❑

Software & Technology

CODIE Awards Announced

KidDesk by Edmark won in two categories (Best Educational Tool and Best User Interface in a New Program) in the annual CODIE awards from the Software Publishers Association, but other educational programs also did well:

- *Just Grandma and Me* (Best Overall Education Program) and *Where in the USA is Carmen Sandiego*, Deluxe Edition (Best Home Learning Program), Broderbund Software.
- *Millie's Math House* (Best Early Education Program), Edmark.
- *Dinosaur Adventure* (Best Elementary Education Program) and *Space Adventure* (Best Secondary Education Program), Knowledge Adventure.
- *SimLife* (Best Simulation Program) and *A-Train* (Best Strategy Program), Maxis.

The Critics Choice Award for Best Education Program went to *Interactive Physics II* by Knowledge Revolution.

New York *Times* columnist Peter Lewis was recognized for outstanding contributions, one of five journalists so honored. His award was for "Best Software Reviewer." Lewis is syndicated to several hundred papers internationally.

Women's Video

Her Own Words of Madison, Wisconsin, is carving out its own niche: women's history, literature, and art on video. Subjects range widely: Winnebago Indian women telling about their childhoods; photos of quilts with commentary by the women who made them; a Norwegian immigrant pioneer woman tells how she learned to love the prairie; how women got the vote; the life and times of "Fighting Belle" Case LaFollette (1859-1931).

Her Own Words, P. O. Box 5264, Madison, Wisconsin 53705. Telephone 608 271-7093. Purchase $95; rental $40. Each video has a companion resource guide for $20 with script, viewing notes, discussion questions, readings, bibliography.

The Doctor Is Input

Soaring medical and insurance expenses make a medical software program designed specifically for families and small organizations more than usually useful. Known as *Doctor Bill's*, the program is published by Bayou City Software, P. O. Box 55, Bellaire, Texas 77402-0055. Telephone 800 759-4842. A new Version 2.0 is $69.

National Geo Atlas

The National Geographic Society has created *A Picture Atlas of the World*, its first CD-ROM atlas. Developed by the Society's Educational Media and Cartographic Divisions, in conjuction with IBM's EduQuest, it features maps, photos, essays, music, and video and audio clips. The multimedia format allows the viewer to jump from a map to a street scene to music and the spoken word with a click of a mouse.

One interesting feature is that users have the option of creating their own multimedia presentations from the disk's 1,200 photographs and video clips. The material may be copied to a diskette, making it ideal for classroom reports.

Available for $149.95 retail, $99 to educational institutions from the National Geographic Society; telephone 800 368-2728; fax 301 921-1575.

State Adoptions

Optical Data Cororation is bugeling the news that two of its videodisc science programs have been listed for adoption in a number of key states. In 1990 *Windows on Science* became the first electronic textbook adopted by Texas; now four more states—Indiana, New Mexico, Utah, and West Virginia—have come on board.

Insights, a hands-on science curriculum for grades K-6 developed by Education Development Center, will also be distributed by ODC. It has already been listed for adoption by three states this school year – California, Indiana, and Nevada.

Insights is an elementary core science curriculum comprising 17 modules. The module topics represent a balance of the life, earth, and physical sciences and allow for continuous growth in experience.

The *Windows on Science* curriculum includes 11 videodiscs, printed lesson plans, student activities, and companion reading program. In addition to still images, each videodisc contains movie clips that are narrated in English and Spanish on parallel audio tracks.

For more information, call 800 524-2481.

Happy Trails

The Oregon Trail, MECC's well-received simulation, is now available for the Macintosh on CD-ROM. The newest version has hundreds of new full-color graphics and digitized speech, designed to draw the user into the dusty world of the pioneer trekking Westward.

A new release from MECC in the trail mode is *Amazon Trail* in which the user must navigate the endless Amazon and survive on its terms. The user charts the course, manages supplies, fishes, explores the rainforest, talks with the natives, and trades for goods. So far only a DOS version; a Mac will be out by summer. $49.95. Telephone 800 685-MECC; extension 549 for *Oregon Trail*. In Canada, 800 663-7731. A catalogue of more than 200 MECC products is available free.

Geometer's Sketchpad from IBM

EduQuest, IBM's educational division, is now offering *The Geometer's Sketchpad*, a middle- and high-school geometry program developed by Key Curriculum Press of Berkeley, California. Now available for the first time on IBM computers that run *Windows*, the program allows students to construct and manipulate geometric concepts, explore abstract relationships, and investigate geometric concepts.

The program runs on IBM compatibles using *Windows* 3.1. $170 with educator's discount; $900 for school site/network package. Telephone 800-IBM-3327.

continued on following page

Rabbits Are Multiplying

The *New Math Rabbit* has just been released, an upgrade of the award-winning *Math Rabbit* to teach early math skills to children ages 4-7. Published by The Learning Company, the Rabbit family now has four titles, all of which are built around the concept of combining sophisticated graphics, digitized speech, sounds, and music.

New Math Rabitt takes place at a Circus of Numbers which has five attractions: Calliope County Game, the Tightrope Show, the Sea Lion Show, the Balloon Matching Game, and the Prize Center. There are lively animations and digitized speech to add interest to the activities.

For IBM-compatible and Apple Macintosh. Available from The Learning Company, 6493 Kaiser Drive, Fremont, California. Telephone 800 852-2255.

CD-ROM Boomlet

After several years of promise, CD-ROM looks like it might make the predictions come true. Industry experts expect the ratio of students to CD-ROM drives in schools to drop to about 160 (it's currently over 550) and prices are expected to fall $2-500. Also, expect computers with CD-ROM drives bundled in at little extra cost.

Sony recently released its Desktop Library CD-ROM System, which includes two software applications and two discs: *The New Grolier Multimedia Encyclopedia* and Volume I of *Great Wonders of the World*.

Eastman Kodak Company has made CD technology more accessible by enabling its Photo CD player to do double duty, playing audio CDs and photographs on television monitors, and it will work with both MS-DOS computers and Macintosh. Apple's latest version of *QuickTime* reads Photo CD files; and Kodak's new Photo-CD *Access* software gives MS-DOS, Windows, and Mac users the ability to read and save Photo-CD images. Kodak will transfer photos for about $1 per image to a disc which can hold 100 images, and promotes it as the least expensive way to get images digitized for library use.

For more information: EduQuest, 800 769-8322; Sony, 800 352-7669; Eastman Kodak, 800 242-2424; Apple, 800 950-2442. ❑

Books

A natural law about computers not sufficiently appreciated may be: "Anything new that's electronic and which decreases the need for paper at the desktop, creates an equal and opposite need for printed books on how to use it effectively." Several such tomes to be considered follow.

The Macintosh Bible is still considered the best Macintosh book. A Fourth Edition is now out for $32 from Peachpit Press of Berekeley, California. Telephone 800 283-9444.

The Apple Macintosh Book, Fourth Edition by Cary Lu, 500 pages on how to get the most out of your investment. Not for dummies. $24.95 from Microsoft Press of Redmond, Washington. Telephone 800 677-7377.

The Fred Davis Windows 3.1 Bible is high on every expert's list, but at 1,100 pages it may well be more than most people want to know.

The Internet Companion, subtitled "A Beginners Guide to Global Networking," with a foreword by Albert Gore. As proof that Internet is evolving into something far more powerful than CompuServe or Prodigy, the two authors (Tracey LaQuey and Jeanne C. Ryer) lived a time zone apart and never met while the book was being planned or written. $10.95 from Addison-Wesley of Reading, Massachusetts. Telephone 617 944-3700.

Other Volumes of Interest....

The American Heritage Custom Publishing Group, a subsidiary of *American Heritage* magazine, announced it is well advanced on plans to provide the K-12 market, with emphasis on high school, with customized textbooks. Simon & Schuster and McGraw-Hill are already well advanced in this area. American Heritage expects its textbooks to cost about $15 to $18, less than most ordinary college textbooks. Full-scale expansion could start as early as next year.

Parent Involvement in the Educational Process. Annotated bibliographies and abstracts of journal articles for use by educators who want to involve parents in the educational process; 65 pp., $7.50. ERIC Clearinghouse on Educational Management, College of Education, University of Oregon, Eugene, Oregon 97403.

The Latest and Best of TESS. The most recent and most highly rated software programs culled from The Educational Software Selector (TESS), developed by EPIE Institute. Some of these programs will have appeared in *EPIEgram* during the past year. The 1993-94 edition will be available in May. Write, call, or fax Pat Lutsky, EPIE Institute, 103-3 West Montauk Highway, Hampton Bays, New York 11946; telephone 516 728-9100; fax 728-9228.

If you want insight into what the best and brightest are saying about improving math and science teaching, you could do worse than to get *Improving Math and Science Teaching*, a report on a conference held in Washington by the DOE's Office of Educational Research and Improvement. Stock #065-000-00553-1. $1.75. Superintendant of Documents, U. S. Government Printing Office, P. O. Box 371954, Pittsburgh, Pennsylvania 15250-7954.

Head Start and Beyond: A National Plan for Extended Childhood Intervention. Edited by Edward Zigler and Sally J. Styfco. 155 pp., $20. Yale University Press, 92A Yale Station, New Haven, Connecticut 06520.

The Kentucky Education Reform: Lessons for America, by Betty E. Steffy, former state deputy superintendent of instruction, reviews massive reform plan undertaken in Kentucky. Technomic Publishing, P. O. Box 3535, Lancaster, Pennsylvania 17604. 319 pp., $35. ❑

STATS

ESL Boom

The number of U.S. residents for whom English is a second language jumped some 30% in the last decade to a total of 31.8 million. One in seven residents, 14%, grew up or are growing up speaking a language other than English.

Numerically, Spanish speakers (17.3 million) far outnumber any other group; but in percentage terms, some unexpected language groups have risen precipitously. French Creole speakers, for example, increased from 25,000 to 188,000; but the fastest-growing language group, at 676%, was Mon-Khmer, spoken by Cambodians, speakers of which increased from 16,000 to more than 127,000.

The state with the highest percentage of ESLers was New Mexico (33.5%), followed by California (31.5%), and Hawaii(24.8%), with New York close behind (23.3%). The greatest increase, however, was in California, up 3.6 million in just ten years.

PCed Homes Better Educated

Computerized households have a number of distinctions, according to a recent survey funded by SPA, including higher incomes and four years of college (51%). While only 10% of U.S. households have annual incomes of $75,000 or more, almost 30% of computer-owning households are in that category.

Ivy on the Brain

A group of University of Pennsylvania students surveyed more than 3,000 undergraduates at their own and other Ivy League schools and found that half could not name their home-state senators; 44% did not know that Thomas S. Foley is Speaker of the House; 35% did not know that Alan Greenspan is Chairman of the Federal Reserve Board; more than a third could not name the Prime Minister of Britain; 23% did not kow that the Supreme Court has nine justices; and 18% could not name a single justice.

Dumbness Flourishing

Acording to the *Chronicle of Higher Education* (4/24/93) about one in every three freshmen entering college needs remedial courses of some kind. Deficiencies vary – reading, of course, but also an inability to study, math, just about everything they should have learned in high school; and worries vary as well. Professors worry about the impact large numbers of marginal students will have on college standards; administrators worry about the cost of remediation.

Indicative is that fewer students scored 600 or above in the verbal SAT in 1992 than in 1972 despite the fact that many more students took the test.

Among the reasons given: too much gaping at television and the fact that many public-school teachers, uncomfortable with the idea of an intellectual elite—even among the lower-income students which are the only kind they see—, make greater efforts to improve average and below students than to foster high achievement in the unprivileged but gifted.

Software Zooms

Unit software sales in North America are up strongly, according to the Software Publishers Association: 36% for the year and 40% for the quarter. The dollar volume for 1992 totaled $5.75 billion.

International sales growth outpaced the North American market despite the longstanding problem of digital pirating. While DOS sales declined in the fourth quarter, it remains the largest category with 45% of revenues. *Windows* sales almost doubled to $1.93 billion, with Macintosh sales about half that amount.

Home-education products were up 47% for the year, a significant trend, with entertainment products up 29%.

Vanishing Act

In 1942, there were 108,579 independent school districts; in 1992 there were 14,556. ❑

EPIEgram
Software and Systems for Learning
P. O. Box 28
Greenport, New York 11944

BULK RATE
U.S. POSTAGE
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PERMIT NO. 38
GREENPORT,
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FOR RIE

EPIEgram

The Newsletter of Software and Systems for Learning

Volume 19, Number 9 June 1993

Data Networks Ramifying

Superhighway a-Building from Ground Up

The Future Is Already Here – But Can You Afford It?

High-tech experts have laid out an ambitious vision of the telecommunications future: a vast, fast network of cables, terminals, computers, and telephones that would connect the country far more closely and significantly than the interstate highway system did in the 1950s. But two things should be kept in mind about this Information Superhighway which the Administration is promoting. One is that it won't be here for years; the other is that it already is.

Look for no one giant construction project like the Panama Canal; no magniloquent ceremony like the driving of the golden spike. Instead, pieces of the network are already being created in thousands of places around the country; and slowly they will coalesce.

As evidence, consider places such as the Oak Park-River Forest High School: the Chicago *Tribune* reports that students there, working from what once was a storeroom, use Macintoshes to maneuver a multimillion-dollar Cray II supercomputer more than 100 miles away in Urbana, having it solve complex equations in quantum mechanics. Projects such as this one, undertaken now by high-school students, would have challenged university graduate students only a few years ago.

It is a prime example how the Information Superhighway, the centerpiece of the Clinton-Gore Administration's technology policy, can improve public education. It also illustrates how much of America's information infrastructure is already in place.

Linking schools and libraries to powerful computers and giving everyone access to information in a form they want is the Clinton plan's ultimate goal; but millions of miles of additional optical-fiber is not necessarily required in order to attain that goal. In fact, say experts, we already have a national fiber-optic transmission system that is mostly unused.

Instead, attention must be paid to mundane details, things like giving high schools the software to access supercomputers, training people to use them, and budgeting for the phone bills the computer connections will ring up. It is this less glamorous, middle-tech work of hooking people into *today's* information network that will have the biggest immediate impact on the nation.

At Oak Park-River Forest High, a key factor enabling students to use supercomputers is the school's courses in applied science and technology; moreover, the school's technology department head, Bob Gauger, is eager to collaborate with universities and exploit technology to its fullest.

Even though connections between Oak Park and Urbana would work better with a dedicated fiber-optic data line, Gauger wasn't about to wait for one to be built; so his students access the supercomputer using regular telephone lines.

"I wanted to do it right now," Gauger told the *Tribune*. "Why wait for something that's perfect in the future, when you can get going and use the system right now? Our current setup is slow and sometimes locks up and can be frustrating, but the kids are using it and learning. That's what's important."

continued on page 13

SCISSTESS Update Begins on Page 6

The Latest
Mathematics and Business & Careers Software from *TESS!*

Seven Colossal Pages
of Program Data and Descriptions

Opinion

"In this decade, the ability to communicate ubiquitously will explode. Communications bandwidth for digital information will expand at a rate even greater than the microprocessor growth in the 1980s."

– James A. Cannavino, IBM senior vice president, after IBM and Blockbuster announced the formation of a multimedia alliance todeliver music, films, and games electronically to retailers.

❦

"The old means of distributing information were very unfair. When I was at Harvard, I'd get preprints by virtue of being on a very select mailing list. The rest of the world, the postdocs, would have to wait to get their stuff months later. In a field that's rapidly developing, that means everything."

– Dr. Paul Ginsparg, a physicist at Los Alamos, quoted in "Doing Science on the Network: A Long Way from Gutenberg," New York *Times*, May 18, 1993.

❦

"I know people who have stopped using Internet because they get 500 messages a day."

– Susan Kubany, president of Omnet, *ibid.*

❦

"To the question, 'What problem does the information solve?' the answer is usually 'How to generate, store and distribute more information, more conveniently, at greater speeds than ever before.' This is the elevation of information to metaphysical status: information as both the means and end of human creativity. In Technopoly, we are driven to fill our lives with the quest to 'access' information. For what purpose and with what limitations, it is not for us to ask; and we are not accustomed to asking, since the problem is unprecedented."

– Neil Postman, *Technopoly: The Surrender of Culture to Technology*.

❦

"Education is a progressive discovery of our own ignorance."

– Will Durant.

❦

"There are two kinds of educations. One should teach us how to make a living and the other how to live."

– James Truslow Adams.

❦

"[Math students'] responsibilities are shifting from manipulative skills needed in the past toward reasoning skills needed in the future. There are many kinds of decisions better left to humans than machines, and that is where the ability to reason will remain crucial for the foreseeable future."

– Edward F. Gardner, Agnes Irwin School, Rosemont, Pennsylvania.

❦

"My personal belief is that there is no other way to make change. The only thing that really matters in reform is what happens between teachers and kids."

– Robert E. Slavin, founder of Success for All Programs, Johns Hopkins University.

❦

"[T]here's no question the cumulative impact of this banalization of sex and violence in the popular culture is a net negative for America. I think the question is, what can Hollywood do not just to entertain, but to raise the human spirit? Historically, artists elevated humanity, they didn't debase life. Even when art captures something horrible, like Goya's war paintings, it was to make people see war for what it is."

– President Clinton, interview with *TV Guide*.

❦

"During the presidential campaign, Bill Clinton was a persistent advocate of public school choice. This not only firmed up his credentials as a 'new' Democrat. He actually liked the idea, having installed a school choice program in Arkansas. School choice got a further plug in *Putting People First*, Clinton's campaign book. He pledged to 'help states develop public school choice programs like Arkansas's.' And in the presidential debate in Richmond, Virginia, last October, Clinton endorsed a variant of school choice: innovative 'charter' schools started by teachers under contract to public school authorities. 'I don't think we should spend tax money on private schools, but I favor...radical decentralization in giving more power to better trained principals and teachers.'

"That was last year, when Clinton was playing an outside game, appealing to voters. Now, as president, he's playing an inside game, catering to congressional Democrats, liberal interest groups and his own administration. School choice and charter schools have practically vanished from his agenda."

– Fred Barnes in *The New Republic*.

❦

"Education should not be partisan, and everyone who cares about our nation's future must continue to work for the improvement of education for all children."

– Diana Ravitch, Assistant Secretary, Office of Educational Research and Improvement. ❑

In the NEWS

New Information Technology Circus

CompuX '93, billed as "America's local computer exposition," will make its debut in Philadelphia on May 25 and Valley Forge on May 27. The Philadelphia show will be at the Holiday Inn Center City, the Valley Forge show at the King of Prussia Holiday Inn.

CompuX '93 will then move on to Ohio in August and North Carolina in November. At all CompuX shows, computer and information technology vendors will exhibit their innovations in hardware, software, networking, imaging, CD-ROM, multimedia, peripherals, and more. The list of exhibiting companies includes Lotus, Borland, Microsoft, Novell, Xerox, and WordPerfect.

The Ohio events will be held in Cincinnati, August 10; Columbus, August 11; and Cleveland, August 12. The North Carolina events will be in Durham, November 2; Greensboro, November 3; and Charlotte, November 4. All shows are from 10:00 a.m. to 3:00 p.m. Additional dates and sites will be announced as plans develop.

CompuX '93 is produced in clusters of cities throughout the country, substantial IT markets that do not normally see major shows. The CompuX series provides a service to both computer vendors who want to reach local markets, and local IT professionals who do not always have access to new technologies for comparison and evaluation.

CompuX is for the IT professional in Ohio, for example, who may not be able to attend a show in Las Vegas or Chicago, bringing technology to people nationwide for free hands-on inspection.

For more, ring Sylvia Griffiths at 800 638-8510 or 703 683-8500; or Tom Lauterback at 800-638-8510 or 703 683-8500; fax 703 836-4486.

More Copyright Agita

Since software and electronic publishers don't own the copyrights to the photographs and other material they package into their multimedia, they must perform series of complex negotiations with those who do. Insiders say there will have to be big changes in copyright and use law.

Publishers of coffee-table books and the like have always faced many of these difficulties; but the problems are compounded in the digital world. First, you have music, speeches, video, and animation added to the mix; second, you are dealing with copyright owners who don't understand multimedia. The potential difficulty or cost of getting the necessary rights has already scuttled one product at Microsoft.

This is really sticking spokes in the wheels of the CD-ROM bandwagon. Because few computer users are equipped to play them, markets and profits are not large to begin with; the extra expense of tracking down and securing rights can be deadly.

Publishers say that rights for music are easier to obtain than those for visual images, especially photographs. While established organizations handle rights for composers and musicians, no central clearinghouses for visual works exist.

Sometimes publishers will scour public-domain sources for photographs and other images they can use in their products without paying royalties. Ebook did this in its multimedia history of jazz music.

Many multimedia producers say they have had difficulty obtaining rights in what seems an unlikely place: Hollywood, a town veritably built upon the tar pits of copyrights and deals. Microsoft, for example, was unable to get the cooperation it wanted for its *Cinemania* CD-ROM; they could persuade only Turner and Paramount to sell rights for the first version of *Cinemania*. Hollywood also poses another problem for would-be multimedia producers: dizzying royalties. Big names expect *el mucho dinero* for any use of their work.

IBM Donates Computers to Schools and Libraries

May 18. Eastern York School District, one of a number of recipients in Pennsylvania of surplus computer equipment from IBM, today accepted the largesse in a ceremony at Eastern Junior-Senior High School.

The iron was donated to schools and libraries across Pennsylvania through the combined efforts of Richard M. Walsh, special assistant to the governor for telecommunications and technology systems, and the state Department of Education.

Pennsylvania Commissioner of Libraries Sara Parker welcomed the donation, saying, "Pennsylvania schools and libraries recognize that students and teachers gain tremendously from competency in all that computer technology can offer.

"This partnership with IBM . . . demonstrates the mutual benefit of business-education partnerships in which students and teachers gain computer literacy and IBM gains future adult citizens with greater understanding of the potential of computers," Parker said.

Examples of the bonus booty (no drooling):

Both the Pittsburgh School District and the Mon-Valley Education Consortium got their sweaty hands on 16 XT computers and printers. These will be used in school libraries to access Internet, and Access Pennsylvania, an online database listing the 16.5 million holdings in 1,070 Keystone State libraries.

Clarion County schools got 13 XTs and printers to enable students in rural schools to participate in otherwise inaccessible courses such as anatomy and physiology offered through a telecommunications network of computers and telephones.

Eastern Junior-Senior High School in Eastern York School District got 30 XTs and printers to upgrade its computer offerings in a school which had had very limited equipment. These computers will provide a writing lab for both junior and senior high-school students, computers in classrooms to assist teachers, and a language lab.

Public libraries throughout the Commonwealth got a total of 50 XTs and printers to provide small libraries which cannot afford computers with access to Internet, communications networks with other libraries, and many online catalogs from other libraries, in accordance with the State Library's long-range goals.

continued on following page

Garden State to Bail Out Fumbling Grads

Beginning next spring, employers may ask New Jersey community colleges to continue educating a graduate hired for an entry-level position but found to be lacking in skills. The New Jersey Council of Community Colleges announced the one-year pilot program Tuesday.

"Harvard won't give you this guarantee, but we will," said Lawrence Nespoli, the council's executive director.

Employers will be required to report worker shortcomings to the school in writing within 90 days of employment, and must develop education plans to correct them. Students may return for three courses without tuition.

"The higher-education community must learn to become more accountable to its customers. Business and industry are relying on that, " Nespoli said.

$2 Billion in Fiber-Optic Cable Planned

The largest cable-television company in the U.S., Tele-Communications, Inc., of Denver, Colorado, has launched a $2 billion venture to lay fiber-optic cable connecting more than 400 cities throughout the country by 1996. The project will intensify the struggle between cable and phone companies to bring all kinds of high-speed, two-way information services to the home; and is an example how private firms are already aceing out the feds in the race to string the data superhighway.

Tele-Communications was already planning to use digital-compression technology, which by itself can increase the capacity of a cable system from 50 to 500 channels; but now it will join that undertaking with the awesome power of fiber optics, tiny strands of glass which carry data as pulses of light. The firm foresees that the project will be 90% complete by 1996.

Other cable companies are availing themselves of similar technology. Time Warner is stringing a system in Orlando, Florida, which will provide television, telephone, and information services. However, the systems will need to install extra hardware for two-way interaction, and users may need to buy or lease high-tech converters --which will in fact be a kind of PC. General Instrument and Intel recently announced a joint venture to manufacture just such devices.

Optical fibers can carry up to a billion bits of data a second, enough for 850 channels of digitally-compressed video or 60,000 pages of text a second. However, Tele-Communications officials expect much of their new capacity to be used for nothing better than pay-per-view sports programs, such as high-school events, or a selection of movies that can be run repeatedly around the clock or staggered on different channels, so that a user can tune in any time and have to wait no more than a few frustrating minutes until *Ninja Turtles VIII* begins again on one of them.

However, the company is carrying out experiments in which its own customer-service and sales people work at home and are connected to office computers through the cable network. They also own part of an online information company, Xpress, which is already providing data to business users over cable systems, and they are looking into new arrangements to serve residential customers as well.

Meanwhile, honchos at Prodigy, the popular but maddeningly torpid online service, which currently uses telephone lines, have shown interest in switching to cable lines, which would be many times faster even in their current primitive, coaxial condition.

The Digital Channel

Digital Equipment has announced the Digital Channel, a combination of products and services that enable cable-TV operators to provide their subscribers with Ethernet-based network services for distance learning, telemedicine, and other computer applications over existing Cable-TV lines.

Lynn Jones, the Channel's manager, announced: "Until now, the cable-TV industry has been focused on entertainment for consumers, rather than providing an interactive information highway to businesses and institutions. Our new program provides cable operators with a practical way tc broaden their product offerings, by adding services that reach out to businesses and institutions."

The Channel offers installation, service, and support of interactive multimedia Ethernet networks for the cable-TV industry. Applications that will run over The Digital Channel include multimedia kiosks, as well as distance learning and video conferencing.

PC News

Not news about PCs, news on PCs.

A new pilot program from NBC Desktop News may soon be available to bring you the news you want and when you want it via your PC. Both video and print content are digitially converted into electronic news stories which are delivered to and stored in your computer, leaving you free to watch it at your convenience and in terms of your own priorities. Who knows, you may want to devote gigabytes of disk space to Tom Brokaw's face.

The service integrates text, graphics, video, and sound in an easy-to-use (they say) format with a look much like that of television news. The news is automatically screened for each viewer's "news profile" and is updated throughout the day.

Corporations will be able to subscribe to industry-specific news (e.g., pharmaceuticals, finance, etc.) and can add their own news and training information to the programming.

To know more, contact NuMedia, 201 North Union Street, Alexandria, Virginia 22314. Telephone 703 684-9000; fax 703 684-9393.

GSA Bulletin Board

Anyone wanting to know what the Federal government is buying can access the Information Resources Services Center (IRSC) when there is a need for information on policies, programs, contracts, and services. It provides vendor names, phone numbers, GSA contract numbers, and provides a Feedback Hotline. The Bulletin Board operates 24 hours a day, seven days a week.

1200 Baud: 202 501-2661 for commercial and Washington, D.C.; 202 241-2661 for government FTS.

2400 Baud: 202 501-2014 for commerical and Washington, D.C.; 202 241-2014 for government FTS.

If you need help getting on line, call GSA at 202 501-1404 for Commercial and Washington, D.C. or 202 241-1404 for government FTS.

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THE STATES CONSORTIUM FOR IMPROVING SOFTWARE SELECTION
SCISS
TESS
THE EDUCATIONAL SOFTWARE SELECTOR
UPDATE

Nothin' Could Be Finer...

...than to welcome a new member to the States Consortium for Improving Software Selection. South Carolina is the eighth member to join this growing consortium of states and school districts committed to helping teachers identify and use educational software effectively.

Consortium Grows 100%!

This summer marks the third anniversary of the States Consortium for Improving Software Selection (SCISS). In just three years, membership in SCISS has grown from four charter members to eight fully participating members, all committed to providing their educators with the most comprehensive resource for educational software: the TESS database. Here is the current parade of members:

Chicago Public Schools	Georgia
Indiana	Michigan
New York	South Carolina
Tennessee	Texas

Hot Off the Press , and a Discount, Too?

Yes, Virginia, there really is an easy-to-use, one-volume print directory of information on more than 1,600 recently released and most highly-rated educational software programs.

The 1993 edition of *The Latest and Best of TESS* is now available, and SCISS-participating schools may purchase copies of this print edition for only $10 each, a 67% discount off the list price!

The Latest and Best of TESS, culled from the full TESS database of information on more than 10,000 educational software programs, contains almost 2,000 entries specifically for Macintosh and MS-DOS computers. The most highly-rated programs are based on review citations from a list of more than 70 respected review sources, including EPIE Institute.

The 1993 edition of *The Latest and Best of TESS* lists for $29.95; $10 for SCISS participants. To order, forward a purchaser order or check to EPIE Institute, 103-3 West Montauk Highway, Hampton Bays, New York 11946. Shipping and handling is $5 per book. Contact EPIE about volume purchases. Phone 516 728-9100; fax 516 728-9228.

CD-ROM Right Around the Corner?

Plans are underway to develop a CD-ROM version of TESS. EPIE staff and consultants are working to ensure similarity of the present search software that operates TESS off a hard drive once that program is transferred to CD-ROM technology. EPIE is also testing the rate at which a search is carried out on CD-ROM, as well as the accuracy of data as the information is transferred to CD-ROM.

The CD-ROM version of TESS is expected to be available for the summer 1993 update.

New, 1993 Edition Available: Latest and Best of TESS

(Text of a press release sent to educational media dated June 1, 1993)

EPIE Institute is pleased to announce the publication of the 1993 edition of *The Latest and Best of TESS* (The Educational Software Selector). List: $29.95 plus $5 shipping/handling.

This 224-page print directory contains information on more than 1,300 instructional and administrative software programs specifically for Macintosh and MS-DOS computers. Virtually all curriculum areas and grade levels are represented.

Culled from EPIE's nationally recognized database of information on educational software, *The Latest and Best of TESS* presents recently released products as well as the most highly rated, as reviewed by 70 respected review sources.

Included in each program entry is a detailed description of the program, suggested uses, grade level, price, availability, and review citations. A separate index provides users with quick access to supplier data, including address, phone, and ordering information.

The full, electronic TESS database contains information on more than 10,000 educational software programs from more than 1,000 suppliers and offers search capability to identify programs that meet specific software needs. TESS is available in electronic format to schools in states participating in the States Consortium for Improving Software Selection. ❑

The Latest of TESS Programs *(Chiefly for the Macintosh)* of Mathematics

Algebra Concepts
Ventura Educational Systems
Mathematics: Algebra
Grades 7-10
A complete introduction to the terminology and basic concepts of algebra. Simulated algebra tiles develop an understanding of operations with integers, addition and subtraction of binomials and trinomials, multiplying expressions, and factoring. Move tiles on-screen to represent algebraic expressions. Computer evaluates the expression and displays the results. Average lesson 30 minutes. Keeps records. Network version available.
Apple II+/IIe/IIc/IIgs, Macintosh 512E, IBM PC and compatibles, $59.95.

Algebraic Patterns: From Arithmetic to Algebra
WINGS for learning/Sunburst
Mathematics: Algebra
Grades 8-12
A tool for uncovering and testing the relationships between numbers, this program helps students make the transfer from arithmetic to algebra. The objective of the program is to encourage students to find various relationships between the numbers in a table and to formulate the relationships in mathematical terms using variables and functions. Encourages students to collect numerical samples, to assign variables, to explore various stamps on the board, and to test their conjectures. Students are exposed to generalization techniques as they modify the shape of the board, from rectangular to triangular for example, to see if their conjecture still holds. Includes a collection of tables to be explored; also, users can create and save their own tables.
Macintosh Plus, $129; IBM PC and compatibles, $99.

Calc+
Abbott Systems
Comprehensive: Generalized Tool Programs; Calculators and Equation Solvers
Grades 7-College
A calculator that provides users with decimal and desktop publishing functions. Allows resizing and scrolling, printing of calculations, and error corrections. Users can add, subtract, multiply, divide, and do percents. System 7 compatible.
Macintosh 512E, $79.

Clip-Art for Math Teachers
Ventura Educational Systems
Mathematics
Grades 1-12
Provides math teachers with a wide variety of detailed diagrams that can be added to tests, reports, overhead transparencies, and worksheets. Diagrams are in *MacPaint* format and can be edited with most paint programs. Color can be added with *PixelPaint*. Requires paint program. Network version available.
Macintosh 512E, $29.95.

CoinWorks
Nordic Software
Mathematics: Basic Skills; Currency
Grades K-5
An assortment of exercises geared toward mastery of basic money skills. Color graphics and digital sound hold the attention of young learners as they solve progressively more difficult problems on-screen. Lessons address these topics: Coin recognition, counting, making change, comparative value, and sufficient funds. Presentation formats include matching, multiple choice, and completion. On-screen exercises are punctuated with a coin-flipping game of skill just for fun. All exercises can be printed out in worksheet format. Part of the *MacKids* series. System 7 compatible.
Macintosh 512E.

Eureka: The Solver
Borland International
Comprehensive: Generalized Tool Programs; Miscellaneous Tools
Grades 9-College
Solves equations ranging in complexity from simple linear through systems of non-linear relationships. Also does maximize/minimize problems and handles inequality constraints. Provides output in both numerical and graphic form. Output to screen, disk, or printer. For anyone who works regularly with equations.
Macintosh 512E, $195.

Flying Through Math
WINGS for learning/Sunburst
Mathematics: Trigonometry
Grades 8-12
Includes software activities designed to extend the problems presented in the book *Flying Through Math* and to develop deeper understanding of the concepts contained there. The book uses real-life problems to provide students with a context in which to learn and understand. In this book on trigonometry and vectors, students learn through examples drawn from the motivating subject of flying. A discussion of hang-gliders leads to

a comparison of glide ratios, which in turn develops the concept of tangent. Navigation leads naturally to vectors and vector notation, while sine and cosine are introduced along the way.
Macintosh Plus, $75.

Function Probe
Intellimation
Comprehensive: Generalized Tool Programs; Graphers and Plotters
Grades 9-College
A multi-representational software tool for exploring mathematical functions. There are three integrated tools, a calculator, a table-maker, and a grapher. Each tool is displayed in a "window," and these windows are linked so the user can send information from one to the other. Students can construct tables of values and examine patterns within the values. A graph of a function can be transformed, and the student will immediately see its effects on the function's equation. Points from a data table can be sent to a graph window.
Macintosh Plus, $79; lab pack, $316.

Geometry Inventor
WINGS for learning/Sunburst
Mathematics: Geometry
Grades 8-College
An inquiry and exploration tool that lets students manipulate constructions while working with precise geometric concepts such as perpendicular, parallel, and bisect. Measurement tools allow students to investigate length, angle, and area, as well as make calculations based on these measurements. Measurements and calculations change dramatically as students modify the construction.
Macintosh Plus, $129.

Graphitte
Bates Publishing
Mathematics: Algebra
Grades 10-College
For teaching and learning pre-calculus and calculus concepts. Easy to learn; allows users to enter their own examples. For student use and classroom demonstrations. Capabilities include graphing solids of revolution; parametric and polar equations; symbolic differentiation; calculating area and volume. Mac version supports zooming.
Macintosh 512E, IBM PC and compatibles, $99.

Ideal Learning Math Series
Ideal Learning
Mathematics: Basic Skills; Multiple Topics
Grades 4-8
This is a full-year course designed to utilize all of the unique capabilities of the Mac LC, such as sound, high-resolution color graphics, and animation. Each objective has a pre-test and post-test for determining the path the students will take through the teaching of the skill. Each unit is designed to include modeling and guided and individual practice culminating in a high-order thinking activity. The course is appropriate for all students, including those in special programs such as ESL, Chapter I, and gifted. It is sequentially designed and can be easily correlated with local and state objectives. Operates under Ideal Learning's *PODIUM Curriculum Manager.*
Macintosh LC, $3,000.

Informal Geometry
The College Gradebook
Mathematics: Geometry
Grades 8-College
Part I covers units of measure, squares, rectangles, parallelograms, and triangles. Part II covers trapezoids, circles, and composite figures. Part III covers volume of prisms, cylinders, spheres, pyramids, and cones. Explains concepts, shows examples, then provides problems for students. Keeps track of student performance, which is available to teacher only. Average lesson 30 minutes. Keeps records.
Macintosh 512E, $150.

Jungle Quest
Nordic Software
Mathematics: Basic Skills; Multiple Topics
Grades K-6
Teaches elementary-school-level math in the context of an action/adventure game. Travel a dangerous path through the dark jungles of a far-off land. Progress on this quest is dependent on correctly solving simple math problems. A *HyperCard*-based game with sound and color animation. Part of the *MacKids* series. Requires *HyperCard.*
Macintosh 512E, $59.95.

KidsMath
Great Wave Software
Mathematics: Basic Skills; Multiple Topics
Grades K-3
Uses eight games to teach and reinforce basic math concepts for children ages three to eight. Skills include mouse practice, counting, addition, subtraction, ordering, place value, greater and less than, beginning multiplication, and fractions.
Macintosh 512E, $49.95.

Logo Math: Tools and Games
Terrapin Software
Mathematics: Basic Skills; Multiple Topics
Grades 6-12
Covers a range of concepts and provides a math lab approach to mathematics at the secondary level. Six game programs offer practice modes for a competitive challenge involving students in cartesian and polar coordinates, signed and complex numbers, functions and symmetry. Eight tools include a geometry construction tool, graphing program, and more. Network version available.
Apple II+/IIe/IIc/IIgs, Macintosh 512E, IBM PC and compatibles, Commodore 64/128, $59.95.

MacFunction
True Basic
Mathematics: Arithmetic, Mixed
Grades 9-College
Makes it easy to visualize a function of two variables (x,y) by displaying the function's 3D surface. Enter and view any function from any angle. View surfaces as grid meshes, flow lines, or contour lines. Includes features such as partial derivatives, a tool for multivariate calculus courses. Part of the *Kemeny-Kurtz Math Series.*
Macintosh 512E, $79.95.

Master Grapher and 3D Grapher
Addison-Wesley/B. Cummings Publishing
Mathematics: Algebra
Grades 9-College
A graphing utility for functions, polar equations, parametric equations, conic equations, and functions of two variables. Students take an active role in learning precalculus topics by solving equations and inequalities graphically. Many manipulations of graphs are possible.
Apple II+/IIe/IIc/IIgs, Macintosh 512E, IBM PC and compatibles, $43.25.

Master Math
Queue
Mathematics: Basic Skills; Word Problems
Grades 3-9
This interaction drill and instruction program provides immediate feedback and encourages children to learn. Includes Math Word Problems Grades 3-8, Sports Problems I-III, Fraction Word Problems, Special Topics in Math, Mathematics Grade 6, Survival Math Series, and Algebra Word Problems. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $195.

Math Connections: Algebra I
Mathematics: Algebra
Grades 8-11
WINGS for learning/Sunburst
Provides an environment in which students can manipulate algebraic constructs as a means to understanding them. A palette of 14 movable and interconnected mathematical objects allows students to visualize and manipulate algebraic entities. These can be connected to one another in an infinite number of arrangements, providing opportunities for mathematical exploration and more. Network version available.
Macintosh Plus, $129.

Math Connections: Algebra II
WINGS for learning/Sunburst
Mathematics: Algebra
Grades 9-College
Extends the power of *Math Connections: Algebra I* to higher-level algebraic concepts. Enables user to connect algebraic objects and visualize their relationships. Lets user explore the properties of multi-variable expressions, sequences, conic sections, and matrices. Includes an algebraic calculator to help user factor and simplify equations. Network version available.
Macintosh Plus, $129.

MathLab
E+M Software
Mathematics: Calculus
Grades 10-College
A symbolic algebra program designed to solve multi-variate polynomial caluclus problems. Allows user to add, subtract, multiply, divide, factor, expand, substitute, perfrom summations and pi products; and to differentiate and integrate polynomials. Provides linear, semi-log, log-log, and 3D plotting functions.
Macintosh 512E, $49.95.

Math Shop Spotlight: Fractions and Decimals I
Scholastic
Mathematics: Basic Skills; Fractions
Grades 4-8
Students add and subtract fractions, multiply fractions by whole numbers, find fractional parts of a given number, convert decimals to fractions, and add decimals.
Macintosh Plus, $79.95.

Math Shop Spotlight: Weights and Measures
Scholastic
Mathematics: Basic Skills; Measurement and Metric
Grades 4-8
Transactions focus on pounds and ounces; feet and inches; cups, pints, quarts, and gallons; days and weeks; money and time (dollars and cents per hour); and meters and centimeters.
Macintosh Plus, $79.95.

Matrix Algebra
Intellimation
Comprehensive: Generalized Tool Programs; Calculators and Equation Solvers
Grades 11-College
Transforms a matrix to reduced echelon form, solves a linear system, multiplies two matrices, finds the inverse of a matrix, and explains row reductions and matrix multiplication. Students watch the program solve problems automatically, accompanied by detailed explanations. They can also arrive at a solution without the explanation, as a way to check their own calculations. Students can self-pace their progress and can save problems easily to resume at a later date.
Macintosh 512E, $45; lab pack, $180.

Millie's Math House
Edmark
Mathematics: Basic Skills; Multiple Topics
Grades Presch-1
Designed by early-childhood experts; offers children six activities to help them build key early math skills. Interactive, multisensory, animated and full of characters to help enrich children's math education. Lesson plans included.
Macintosh Plus, $59.95.

Number Connections
WINGS for learning/Sunburst
Mathematics: Basic Skills; Number Systems and Counting
Grades K-3
Introduces early elementary students to numbers. Provides a multi-representational way of looking at numbers. Numbers can be displayed as apples (or any of 16 other objects), with blocks, on a number line, as words, and, of course, as numerals. Can combine numbers with add and subtract tools. Sounds and animation enhance the program, both by holding students' interest and by reinforcing the concepts. An innovative Student Book allows young students easy access to ready-to-use activity files. And several simple authoring tools enable teachers to make more activities on their own.
Macintosh Plus, $29.

NumberMaze
Great Wave Software
Mathematics: Basic Skills; Multiple Topics
Grades K-6
Combines the fun of solving mazes with the challenge of solving math problems. Covers simple counting and picture addition through multiplication and division and word problems. Teachers can customize program to adapt to unique needs and pacing. Keeps records.
Macintosh 512E.

PowerMath II
Central Products
Mathematics
Grades 7-College
Solves problems from simple arithmetic and algebra to complicated calculus expressions. Users may save formulae or equations created as well as answers from any operation.
Macintosh II, $149.95.

StatLab
Intellimation
Comprehensive: Generalized Tool Programs; Statistical Processors
Grades 10-College
Helps teach basic statistical concepts and gives students the opportunity to analyze real data sets. Displays model, real data sets, and empirical distributions graphically. Users perform all operations with buttons and menus, making the program easy to learn and use. Teachers can create different labs from scratch, and implement techniques up to and including two-way contingency tables, paired tests, one-way ANOVA, least squares, and least absolute deviations.
Macintosh 512E, $110; lab pack, $440; textbooks, single copy $19.95, lab pack $60.

Business, Career, and Industrial

Blueprint
GraphSoft
Industrial Arts: Drafting and Mechanical Drawing
Grades 9-College
A full-featured professional-level 2D drafting system. User can develop detailed floorplans, mechanical designs, woodworking designs, and more. Standard features include a built-in DXF translator; advanced auto-dimensioning; a full kit of graphical drawing tools; unlimited layers; *AutoCAD*-like classes; symbol creation and hierarchical symbol storage; color; auto-join; fillets; splines; mirroring; text; rotation by degree, minute, and second; and more. Offers written and graphical cues as users draw to allow them to snap to precise points. Comes with a detailed tutorial. Requires separate plotter driver.
Macintosh Plus, $295.

Businessweek's Business Advantage
Strategic Management Group
Business: Management and Financial Planning
Grades 12-College
Challenges students to sharpen their business skills with computer-based, interactive case studies based on feature stories from the pages of *Business Week* magazine. Covering a broad range of industries and headline-making issues affecting big business today. Students step directly into the shoes of today's corporate elite. Includes Compaq Computer and Chrysler case studies. Twelve alternate case studies in various industries are available at an additional cost of $15 each.
Macintosh 512E, $29.95.

Career Development and Goal-Setting
Edudisc
Guidance: Career Information
Grades 11-College
Addresses career goals and objectives, promotion strategies, career skills, and career change. Goal-setting provides ways for evaluating and implementing personal goals. Students practice writing goals and choose between goals and objectives. Time management and motivation are also addressed. Average lesson 45 mins. Network version available. Requires laserdisc player.
Macintosh 512E, $999.

Career Opportunities
Quanta Press
Guidance: Career Information
Grades 11-College
A multimedia database which includes job titles, job descriptions, education levels, chances of advancement, average salaries, and world conditions. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $129.

CircuitMaker
MicroCode Engineering
Comprehensive: Generalized Tool Programs; Simulation Systems
Grades 9-College
A fully-integrated schematic-capture and digital-simulation program. Enables users to draw any electronic circuit quickly and then simulate the digital portion of the circuit. A library of TTL, CMOS, and miscellaneous devices is provided. A feature called macro devices enables users to define their own symbols and fully functional devices. Editing features such as rubberband move, undo, and automatic wire snap simplify circuit construction. Operation of the circuit can be observed by a logic analyzer timing display, by enabling a powerful trace feature which shows the state of every node in the circuit simultaneously as the simulation runs, or by connecting a variety of LED displays into the circuit. A beginner's tutorial is included.
Macintosh Plus, $140.

Claris CAD
Claris Software
Industrial Arts: Drafting and Mechanical Drawing
Grades 7-College
Integrates 2D design and drafting features, including mouse/keyboard entry, construction of fillets, tangents, and perpendiculars, and automatic dimensioning.
Macintosh 512E, $329.

Computer Confidence
South-Western Publishing
Computers: Computer Literacy
Grades 7-9
A textbook and courseware package introducing students to basic computer literacy while helping them discover uses for computers in their own lives. Textbook works with integrated software, enabling a transfer of learning from one function to another. Requires MicroSoft Works. Network version available.
Macintosh 512E, $39.50.

Dallas Oil
South-Western Publishing
Business: Management and Financial Planning
Grades 9-12
As employees of Dallas Oil, students will learn about corporate structure and how big business operates. Students will make administrative decisions, increase awareness of automated office technology, improve business vocabulary, and more. Quick-review statements at periodic intervals check the understanding of concepts presented. Average lesson 20 minutes.
Apple II+/IIe/IIc/IIgs, Macintosh 512E, IBM PC and compatibles, Tandy 1000/3000, $39.50.

Electro Bits
Medina Software
Comprehensive: Generalized Tool Programs; Graphics Generators
Grades 7-College
Collection of 200 electronic elements and 40 symbols to be used with *MacPaint* or *HyperCard*. Creates circuit diagrams. Includes flowchart symbols and samples of over fifty schematic font symbols. Available in both English and Spanish.
Macintosh Plus, $19.96.

FoxBASE+/Mac
Fox Software
Comprehensive: Generalized Tool Programs; Database Managers
Grades 11-College
A programmable relational database management system for teaching database theory, data management techniques, and reporting. Generous use of the Macintosh interface simplifies database viewing, visualization of relations, and data manipulation for the student. Utilizes state-of-the-art fourth-generation language tools that allow complex data entry forms and reports to be designed with the mouse. The integrated programming language is based on the commands and syntax used in dBASE. Network version available.
Macintosh 512E, $240.

Full Impact
Ashton-Tate
Comprehensive: Generalized Tool Programs; Spreadsheets
Grades 9-College
A full-featured, multi-function spreadsheet program. Add as many charts, text blocks, and graphics as desired to get message across. Live preview mode allows user to see how finished results will look. Macro capabilities include both local and global macros, X-macro, and the ability to assign user-defined macros to user-customizable icons, and more.
Macintosh 512E.

Hands-On Electronics
Ventura Educational Systems
Industrial Arts: Electronics and Electricity
Grades 7-College
A work station with more than 50 electronic components and 26 hands-on electronic experiments. Includes everything needed to introduce students to the world of electronics. Four project construction techniques are used for each experiment. Features clear step-by-step assembly instructions, easy pictorial guide, project assembly diagrams, and more. Average lesson 60 minutes. Network version available.
Macintosh 512E, $149.95.

Improving Job and Career Prospects
Queue
Home Economics: Personal Development
Grades 9-College
Offers an interactive question-and-answer style format with relevant studies in many aspects of career preparation and enhancement. With this material, students will learn winning interview behavior; evaluate abilities, goals and values; develop effective communication skills; explore different career options; and improve on-the-job skills. Requires CD-ROM drive.
Macintosh 512E, IBM PC and compatibles, $145.

LogicWorks
Capilano Computing
Computers: Computer Science
Grades 7-College
Designed to meet the needs of digital electronics instruction. From logic gates to functional logic design, takes students through every level of an electronics curriculum. Displays a "live" circuit on screen. Allows students to build a digital circuit in the schematic window and test it.
Macintosh Plus.

LogoWriter Secondary
Logo Computer Systems
Computers: Computer Programming; Logo and Turtle Graphics
Grades 8-12
Designed for junior and senior high school students or for students who have been using *LogoWriter* and are ready for a new challenge. Students learn how to create an adventure game, program a menu, make a maze, and work on many other projects. Introduces major programming concepts emphasized in computer literacy or programming courses. Network version available.
Macintosh Plus, $229.

MacDiet: Professional
Intellimation
Home Economics: Foods
Grades 11-College
Students can calculate nutritional data and diet analyses like nutrition professionals. An individual's (real or fictional) age, sex, height, weight, and body size are the factors used to determine nutrition needs and to conduct comparisons with federal recommended dietary allowances. Monitors up to nine nutrients and target minimum and maximum nutrient goals for diet planning. Includes 2,500 foods and 24 nutrients, and these can be changed to meet individual needs.
Macintosh 512E, $190.

MacDiet: Student Version
Intellimation
Home Economics: Foods
Grades 7-College
Students provide diet order, food intake, physical activity level, and personal data. *MacDiet* then responds with dietary allowance, dietary goals, activity, and energy balance. There's interactive nutrient monitoring for as many as nine nutrients during food selection.
Macintosh 512E, $39.

MacQwerty
Nisus Software
Business: Typing
Grades 6-12
Converts the standard Macintosh Qwerty keyboard to the Dvorak keyboard. Includes a desk accessory version of the two Dvorak keyboard layouts, allowing configuration changes within any program. Can be modified to a custom layout. Single-menu selection changes from Qwerty to Dvorak and back. Dvorak and blank keyboard pictures on the disk. Includes keyboard overlays.
Macintosh 512E, $45.

Making the First Impression
Mind F
Guidance: Career Information
Grades 10-College
Designed to represent a real-life setting. Incorporates visual illustrations, graphic animations, and sounds to complement textual information. Provides information on three resume formats. Includes an interactive dictionary of 216 powerful verbs and an electronic note-taking facility to record any information from the program. Requires *HyperCard.*
Macintosh Plus.

Mavis Beacon Teaches Typing!
Software Toolworks
Business: Typing
Grades 5-College
A typing instruction program with graphics support. Features a no-key teaching mode. Contains a frustration sensor to help pace new typists. Network version available.
Macintosh 512E, IBM PC and compatibles.

MiniCad+
GraphSoft
Industrial Arts: Drafting and Mechanical Drawing
Grades 9-College
Combines 2D CAD, true 3D CAD, a database, an integrated spreadsheet, a programming language, an intelligent interface, and a DXF translator in one program. Users can go from initial design concept to 2D drawings, to 3D models, to cost analysis and bills of materials, without leaving the program. Other features of the program include advanced auto-dimensioning, color, SmartCursor, unlimited layers, easy symbol creation and hierarchical storage capability, auto-join, fillets, splines, and more. Requires separate plotter driver.
Macintosh Plus, $1,750.

ModelShop II
Macromedia
Industrial Arts: Drafting and Mechanical Drawing
Grades 9-College
Designed for modeling and presenting spatial ideas in 3D. User can sketch freely or complete a detailed building, then experience it in a real-time fly-through or as a rendered animation.
Macintosh Plus.

Nutritionist III
N-Squared Computing
Health: Nutrition
Grades 7-College
Analyzes foods, meals, recipes, and diets for 58 nutrients and food components. Contains a database of 5,000 USDA and manufactured food items. Database management, exercise/weight control program, 10th Edition RDAs all included. Average lesson 30 minutes.
Macintosh 512E, IBM PC and compatibles, $495.

Nutrition Stack (7-16)
Big Byte Software
Health: Nutrition
Grades K-College
A *HyperCard* stack for nutritional planning and analysis. Includes more than 2,000 foods; data for types of fat; calorie calculator; food exchange group calculator; and nutrient profiles. Requires *HyperCard.*
Macintosh 512E, $79.

Nutrition Stack (K-16)
Big Byte Software
Administrative Software: Cafeteria
A *HyperCard* stack for nutritional planning and analysis. Includes more than 2,000 foods; data for types of fat; calorie calculator; food exchange group calculator; and nutrient profiles. Requires *HyperCard.*
Macintosh 512E, $79.

Object Logo
Paradigm Software
Computers: Computer Programming; Logo and Turtle Graphics
Grades 3-College
Extends both the capabilities and performance of traditional Logo, providing an environment suitable for users of all ages, from elementary school students to professional programmers. An educational tool and a vehicle for exploring computer programming in general and object-oriented programming in particular.
Macintosh 512E, $195.

Omega Desktop
South-Western Publishing
Computers: Computer Literacy; Applications
Grades 9-College
Pulls together the fundamental concepts of desktop publishing and lets students apply them in a realistic business environment. Activities are generic. Language arts skills are reviewed throughout. A *PageMaker* disk is included.
Macintosh 512E, IBM PC and compatibles, Tandy 1000/3000, $39.50.

PowerDraw
Engineered Software
Engineering: Computer-Aided Drafting (CAD)
Grades 9-College
A professional two-dimensional CAD system that includes palette tools, single width pop-out tool palette, dimensioning tools, and nine user edits. Allows snapping, snap picking, drawing capacity, shearing, plotting, mirroring, clipping, trimming, cutting, extending, combining, attaching, coloring, and aligning.
Macintosh Plus, $795.

Sails for Rent
South-Western Publishing
Computers: Computer Literacy; Applications
Grades 9-College
An information-management simulation. Helps students go beyond merely processing information to managing it. Covers making decisions, creating documents, originating databases and spreadsheets, and designing forms. Requires MicroSoft Works.
Apple II+/IIe/IIc/IIgs, Macintosh 512E, Tandy 1000/3000, $39.50.

Spatial Ware: Principles of Perspective
Intellimation
Industrial Arts: Drafting and Mechanical Drawing
Grades 6-12
An interactive, three-dimensional, animated set of *HyperCard* stacks which illustrates the fundamental principles of perspective drawing. Can help students develop the three-dimensional visualization skills needed for both freehand and mechanical drawing. Includes stacks on the principles of rectangular space, the eye-level line, vanishing lines, vanishing points, inclined planes, and perspective types. Each is defined visually and explained with three-dimensional, animated illustrations, which can be interactively controlled by the user. Requires *HyperCard*.
Macintosh Plus, $45; lab pack, $180.

Think Pascal
Symantec
Computers: Computer Programming; Pascal
Grades 9-College
A programming-language program which includes a fast compiler, a linker, a multi-window printing text editor, a source-level debugger, and a project manager that keeps track of the files that need to be recompiled. Provides extensive support for object-oriented programming for a class.
Macintosh Plus, $749.

True BASIC Language System, Student Edition
True BASIC
Computers: Computer Programming; BASIC
Grades 3-12
Allows users to run programs of any size and to create new programs of 150 lines or less. For use when introducing students to programming. Demo programs are included on each disk. Provides extensive graphics capabilities, including user-defined graphics coordinates, multiple windows, a user-defined color palette, and animation graphics. *True BASIC* is extremely flexible, allowing the user to define an infinite variety of specialized functions and routines, further enhanced by the availability of a large selection of supplemental toolkits.
Macintosh Plus, $14.95.

Typing Instructor Encore
Individual Software
Business: Typing
Grades 4-College
For learning to type or for building speed and accuracy. Exercises on phrases, sentences, and paragraphs help pinpoint specific problems and improve speed and accuracy. Covers correct finger-to-key placement, numeric keypad practice, timed tests, progress reports, and more. Keeps records. Network version available.
Macintosh 512E, IBM PC and compatibles.

Venture's Business Simulator
Strategic Management Group
Business: Management and Financial Planning
Grades 11-College
Puts students against four other computer-simulated robotics companies, challenging them to manage business through the stages of Start Up, Independence, Growth, New Products, and New Territory Expansion. A click of the mouse activates a fully integrated tutorial system explaining basic business concepts, an analysis system for in-depth financial analysis, and a consulting system to focus the student on the key issues and rught questions to ask.
Macintosh 512E, $29.95.

VersaCAD
Computervision
Engineering: Computer-Aided Drafting (CAD)
Grades 9-College
A CAD program that allows 2D drafting and dimensioning, 3D visualization, plotting, and drafting dimensioning abilities. Includes application program interface, file translation, user interface, user help.
Apple II+/IIe/IIc/IIgs, Macintosh Plus, $595.

Wheels for Rent
South-Western Publishing
Computers: Computer Literacy; Applications
Grades 9-College
Allows students to handle 12 information-processing projects working as summer employees for a beachside bicycle and roller-skating rental firm. Introduces word processing, database, and spreadsheet applications. Requires Microsoft Works.
Apple II+/IIe/IIc/IIgs, Macintosh 512E, IBM PC and compatibles, Tandy 1000/3000, $39.95. ❑

Networks continued from front page

Gauger's students use software designed for them by the National Center for Supercomputing Applications in Urbana. It was taken from a chemistry analysis program written by a scientist using the supercomputer for his research. Experts at the center modified the research work to make it into a high-school teaching tool, said Larry Smarr, the supercomputer center's director.

The students gain access to the supercomputer through Internet, the computer network run for university and government scientists largely with federal money. Connecting computers over telephone lines is easy enough, but it does cost money.

"Our biggest problem is phone bills," Smarr told the *Tribune*. "A lot of schools just don't have a budget for making long-distance calls to access a computer. A lot of people are looking at that."

Though there has been some confusion about the government's role in promoting information technology, Smarr said it appears that federal officials now understand they should concentrate on helping schools and libraries connect to Internet.

Internet. A little-known matrix, Internet has already revolutionized the way some 10 million users perform their studies and research. Even students in the third through sixth grades at the Citrus Heights school in Mariposa, California are using Internet to trade electronic messages with other schoolkids around the U.S. Mariposa is one of six schools in the Golden State in a Pacific Bell pilot project to learn how grade schools and high schools might benefit from the coming data superhighway.

The newly-wired kids will have digital pen pals, will carry out surveys among students at distant schools, will share data from science projects, and can access an area where bona fide scientist-guys can answer their questions.

A graduate student at U Cal Berkeley recently used Internet to track down some 19th-century ballads about Irish immigrants. He sent a message to a Cleveland-based network asking if anyone knew of any interesting material about immigrants, and got an an electronic response from a scholar in North Carolina who suggested he use a search program developed at the University of Minnesota.

The Minnesota program then directed him to a database of song lyrics at the University of Wisconsin – which included the ballads. Thus the researcher had travelled thousands of cybermiles back and forth across the country, and he never left his desk.

"It's the most fundamental shift since Gutenberg," Smarr told the New York *Times* in another interview. "The Internet is basically a space and time destroyer. It shrinks distance and time to zero. It's as if all the world's scientists were in one room, available at one computer. Needless to say, this is having a profound impact on the way science is done." And Dr. Stephen S. Wolff of the NSF says, "You can be physically isolated without being intellectually isolated. That's a profound change."

In fact, Internet itself is really a network of local networks, (are we getting into something like fractal geometry here?) – 11,252 of them. It includes more than 700 universities and 1.7 million computer terminals; and millions of users, mostly scientists, with thousands of new users every day. But—significantly—no central administrative body oversees the whole thing, and no one knows exactly how many people are on it.

The Internet started in the 1960s as a means by which to link up university researchers and defense contractors. Until the 1980s, it was mostly used by tech specialists at universities with big defense grants.

In the mid-80s, however, the National Science Foundation agreed to pay for an expanded electronic web that would allow scholars in all fields to communicate. Now, over the past two years, Internet use has exploded out of the science department and into the rest of the university—even into computerphobic disciplines—and the number of users is doubling each year.

As suggested above, in forging new ties among researchers around the globe, the 'Net is rapidly leading to new ways of doing science.

A spectacular example occurred in March, when a robot from the Woods Hole Oceanographic Institute searched the stygian bottom of the Gulf of California. More than a mile underwater the droid spotlighted hot vents and grotesque creatures; instantly its raw data were flashed by tether to the mother ship; then beamed to a satellite; then to computer networks and panting researchers at thousands of terminals around the globe.

For all the complicated technology at its core, the Internet attracts many of its new fans with a very simple use – E-mail, or electronic messaging. A computer science professor at Stanford says, "The chairman of my department finds it bizarre that I occasionally call him up on the telephone to ask him a question."

Scholars use the Internet to copy text files from distant computers, even access online catalogs of university libraries in Europe. They also use Internet lines to link their home computers to campus mainframes. In fact, academic users say it could turn their world upside down by giving small colleges access to libraries and research tools that used to be limited to the hoity-toity Ivy League.

However, the system still isn't powerful enough to transmit mammoth video or graphic files. Moreover, the costs can be high. Running cable to every nook and cranny, getting a terminal onto every prof's desk, providing software and support services – the bill can rise into the millions of dollars for a single campus.

As with the old campus library, so is use of the Internet free for professors and students; for them the sys-

continued on following page

tem is something provided as by enchantment. "I'm spending about $110 a month, according to my E-mail program," says one Berkeley prof. "I have no idea what that means. Does someone give someone else $110 at the end of the month? All I know is I'm not paying for it." However, for those of us who are *not* the smug, pampered parasites of the world of higher education, scraping together the bucks to share in the infinite potential of the new technologies may prove exceedingly troublesome. What good will all the fiber-optic cable in the world be, when schools budget for football and cheerleading and marching bands, and not for online time?

Boston Computer Society Forms Internet Group

The Boston Computer Society, the world's largest personal computer user group, has announced the formation of the Internet Special Interest Group (ISIG). The new group was developed in response to growing public interest in the Internet, a worldwide electronic communication network that allows users access to a wealth of general and specialized information. Internet users are able to take advantage of extensive resources, from electronic mail to software.

"This is a big step for the BCS," said ISIG Director Michael Barrow. "Until now there was no place for people outside the universities and the computer industry to learn about the 'Net.'"

"The ISIG will help people understand how valuable the Internet is and how to access and use the network efficiently. Having access to the Internet is like having the Library of Congress, and much more, at your fingertips."

The group will offer a variety of services, including free and low-cost classes, monthly educational meetings, and a monthly newsletter. It will be headed by Barrow, a computer systems consultant at the Massachusetts Institute of Technology who deals with Internet regularly.

Barrow decided to establish the group when he found that a growing number of people, both computer literate and il-, were asking questions about the Internet.

Support will be offered through electronic mail and by phone, free of charge. Although BCS members may receive discounts on certain fees, the ISIG will provide services for anyone interested in the Internet.

The Boston Computer Society is the world's largest computer user organization, with more than 25,000 members from every state and 57 countries. It is a non-profit organization dedicated to educating people about the uses of personal computers. Founded in 1977, the BCS is headquartered in Cambridge, Massachusetts.

For more information, call Michael Barrow of Boston Computer Society at 617 252-0600 or 617 491-4580.

Schools an Important Part of Administration's High-Tech Schemes

Details of the Clinton Administration's schemes for high-tech investment in the U.S. continue to emerge. The fundamental argument for it is that high-tech investment brings high-skill, high-wage jobs while lessening environmental impacts because information processing is less polluting, then, say, smelting iron ore. The plan will call for more cooperation between industry, labor, universities, and government; government investment in education; and government investment in civilian research. Programs which are intended to improve teaching of science and math will receive additional emphasis. Business and educational alliances will be encouraged to develop new educational hardware and software.

In education the focus will be on improving math and science abilities, in hopes of producing more research scientists and high-tech engineers. Essential to this part of the plan is the building of the national information infrastructure – in effect expanding the Internet so that it would serve not universities and research labs alone, but also make advanced knowledge and computer resources available to students in every public school, from kindergarten through the twelfth grade. The Administration plans the following initiatives in education and training. 1) For students who do not expect to go to college, restructuring primary and secondary schooling, using youth apprenticeships and other programs, to ease the transition from school to job. 2) Training for workers who need to upgrade their skills to keep pace with a rapidly changing economy. 3) Programs targeted to help workers displaced by declining defense budgets or the shipping of jobs to other countries by multinational corporations.

The Administration plan also calls for a task force which will, according to one of its own reports, "establish software and communication standards for education and training; coordinate the development of critical software elements; support innovative software packages and curriculum design; and collect information resources in a standardized format and make them available to schools and teaching centers throughout the nation through both conventional and advanced communication networks." ❑

EPIEgram will return in October

Steep yourself in a bowl of summer.

–Virgil

Software & Technology

386, We Hardly Knew Ye

Average January price for a 386DX system: $1,200. For a 486SX system: $1,577.

Monitor Geometry

When buying a viewplate for your space-age rig, remember: one little extra inch on a 15-inch monitor gives you 30% more viewing area than you get with a 14-inch monitor.

Save Your Tears

Grievous allergies drove us to an ophthalmologist's office, where we saw the following advice on a bulletin board: If you find your eyes becoming excessively dry and tired from working at a computer, adjust the monitor so that you look downward toward the screen. This results in a smaller eye opening and less evaporation of precious bodily fluids.

But Will U.S. Become a Paperless Tiger?

Chairman Mao has gone digital. Agence France-Press reports from Beijing that software developed by an institute run by the People's Liberation Army contains Mao's works, with commentary by communist leaders such as Deng Xiaoping – even research by foreign devils. The Chinese state news agency Xinhua reports that the new software will help scholars dissect and analyze Mao's works. Unfortunately, at press time this is all we have been able to learn about this revolutionary program.

See the USA

What's the average summer temperature in Alaska? Which state has the highest percentage of people who drive to work alone? How about the average annual pay in Texas? Discover the answers to these questions with the latest versions of *PC USA* and *MacUSA*. Broderbund's computerized atlases provide maps, facts, and figures on all 50 U.S. states, Puerto Rico, and Washington, D.C.

PC USA and *MacUSA* include demographic and economic data, such as average incomes, age distribution, and crime rates. The programs also include information on the names of each state's primary political leaders, key historical events, tourist attractions and climate charts for major cities. In addition, users can view state flags and play each state's anthem.

Users can also create thematic maps and bar charts showing comparisons between states or regions in various categories. All maps, charts, and text can be exported to most desktop publishing, word processing, or graphics programs for use in reports and research papers.

Bright Talk Bright Star

Bright Star Technology (Bellevue, Washington) has something new called voice fonts, a method for creating computerized voices that sound more real than today's synthetic voices. While the software, known as *Bright Talk*, won't be available to educators until later this year, the company is already using the new technology in its software *Alphabet Blocks* and *More Alphabet Blocks* to teach preschoolers and elementary school students to recognize letters and to read by lipsynching sounds and words.

Forum Files from CompuServe

K-12 educators who want some indication of what the wired community of the future holds can turn to CompuServe right now for help in a variety of educational areas. CompuServe has online forum libraries that will help educators make decisions on technology purchases, solve educational problems, gather research, get advice on ethical questions in education, and obtain expert opinions in their lesson plans. Here are a few examples from the Education Forum (GO EDFORUM).

Advice for New Teachers. Practical tips for neophyte educators from a 35-year veterean. Library 12, "Teacher to Teacher," TEACH.NEW.

Electronic Gradebook. Short demonstration of the popular Gradebook Plus version 6, for K-12 teachers. Library 2, "Software to Go," GB.EXE.

Spelling Game. A Windows fun-to-play spelling tutor for 5-to-9-year-olds, Library 2, "Shareware and Public Domain Software," HANGJR.ZIP.

Media Bibliography. List of texts and resources to help K-12 teachers teach students about mass media. Library 12, MEDIA.BIB.

Teaching about Japan. Free book of lesson plans for teaching students about Japan is available from the U.S.-Japan Education Group. Library 12, JAPAN.TXT.

Improving Student Understanding. Tips to help students think for themselves and more quickly grasp in-classroom material. Library 17, "Higher Education," APPLYC.TIP. ❑

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STATS

Home PCs Surveyed

About 20% of the 90 million American households now have a personal computer, according to the Software Publishers Association. The SPA surveyed 672 households around the country to find what people are doing with all those machines. The leading applications for home PCs, SPA found, are:

- Personal productivity, a task assigned to the family PC in 79% of homes. This covers such everyday chores as writing letters and balancing checkbooks.
- Bringing work home from the office, a PC duty in 55% of homes.
- Entertainment and games, 52% of homes.
- Educational programs, 42% of homes.
- Running a home-based business, 37% of homes. This category has shown the most growth.

The survey results also had some bad, although perhaps not surprising, news for the industry. Asked where they obtained software, those responding said 40% of their games were "copied" from friends, work, or school. About a fourth of other software was also "borrowed" – violating copyright laws.

Tots Flock to R.C. Schools

Enrollment in Roman Catholic schools has increased significantly, for the first time in 30 years, largely due to the popularity of its pre-kindergarten and kindergarten programs. While overall enrollment increased by nearly 17,000 students, most of that (14,849) came from pre-schoolers.

Mammoth Youth Market

According to a Rand youth poll, teenagers represent a $59 billion market. A recent survey found snacks and sweets still led with a share of 36%; toys and games were second at 29%; but clothing at 13% was on the rise.

In the Past Ten Years...

The average teacher's salary has risen 22% faster than inflation. (From $21,641, in actual dollars, to $36,846.) Average money spent per pupil has risen 90.3%, more than double the rate of inflation.

Cable Ready

Cable TV is in 61% of American schools, reaching 70% of all elementary and secondary students. Only Vermont and Maine have fewer than half their students in schools with cable; Hawaii, which by the way has only one school district, has the most: 93%.

School of Hard Knocks

Results of a 1991 poll by the National Center for Education Statistics: 28% of urban public-school teachers had been verbally abused in the past four weeks; 15% had been threatened with injury in the last year; 3% had been physically attacked in the last year.

Blackboard Jungle

Every day 100,000 children take guns to school.
Every day 6,250 teachers are threatened; 260 are attacked.
Every day 14,000 young people are attacked on school property.
Every day 160,000 students miss school because they fear violence.

– U. S. Department of Justice and National Association of School Psychologists.

Teenagers Under Fire

One out of every four deaths among teenagers age 15 to 19 is caused by firearms, second only to automobile accidents; this according to the National Center for Health Statistics. Significantly, the rate increased between 1985 and 1990 from 19.8 per 100,000 of population to 23.5. Firearm deaths for 10-14-year-olds increased 18% in the same period, reaching a rate of 3.3 per 100,000. Gun murders have increased at an average annual rate of 24% for white males, ages 15 to 19. The homicide rate for black males in the same age group has nearly tripled to 105 per 100,000, a 23% increase in the last year alone. ❑

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